

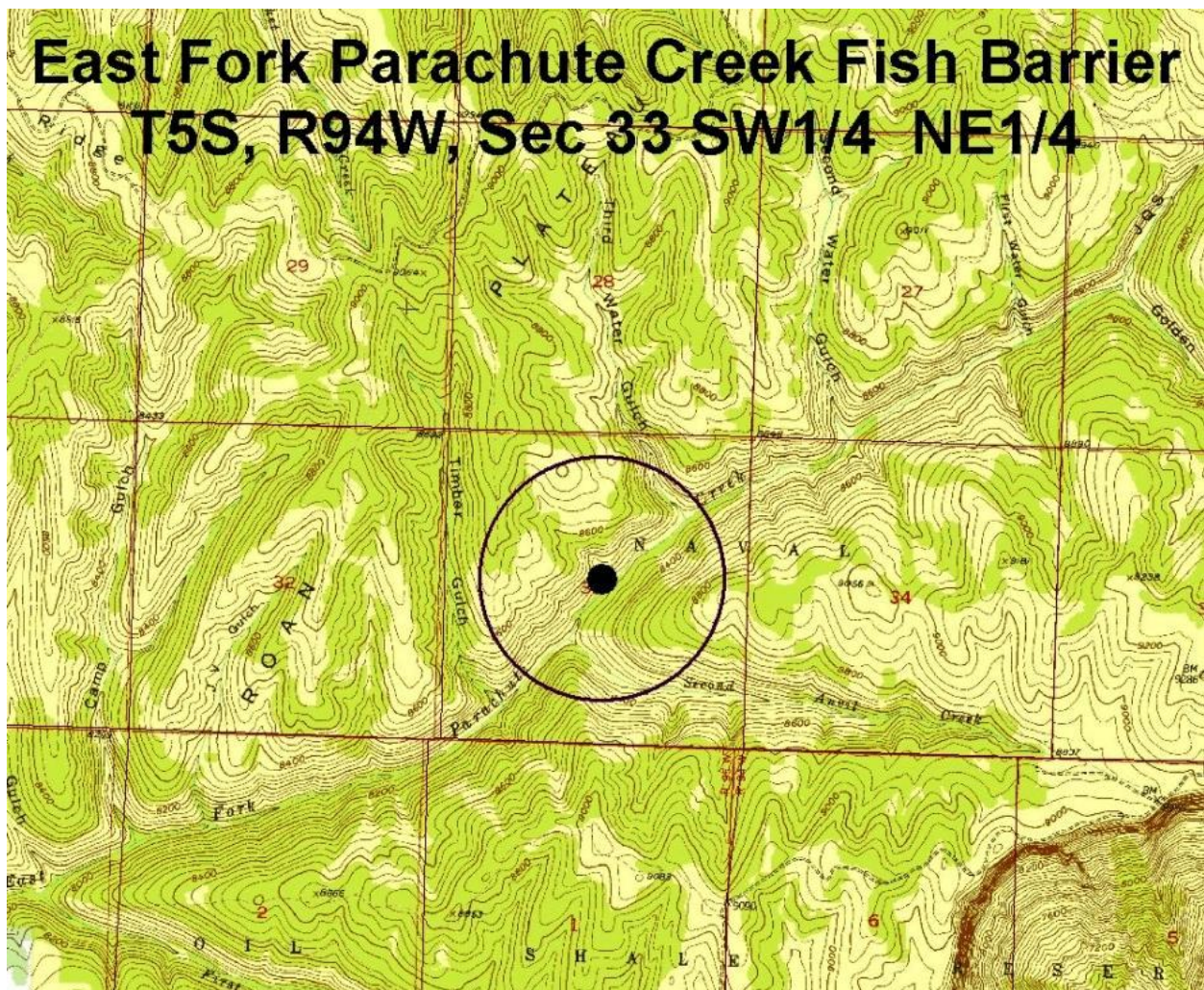
U.S. Department of the Interior  
Bureau of Land Management  
Colorado River Valley Field Office  
2300 River Frontage Road  
Silt, Colorado 81652

## ENVIRONMENTAL ASSESSMENT

**NUMBER:** DOI-BLM-CO-N040-2011-0059-EA-tf.doc

**PROJECT NAME:** East Fork Parachute Creek Fish Barrier

**LEGAL DESCRIPTION:** T 5 S, R 94 W, Section 33 SW1/4 NE1/4



For Close-up of the Project Site See Attachment 1

**APPLICANT:** Trout Unlimited in conjunction with BLM and CDOW

## **PROJECT BACKGROUND INFORMATION:**

The Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*), is a native trout species of the Colorado River Basin. This species is designated as a special status species by the states of Colorado, Utah, and Wyoming. In addition, the CRCT is classified as a Sensitive species by Regions 2 and 4 of the USFS and by the BLM in Colorado and Utah. This fish historically occurred in portions of the Colorado River drainage in the states of Wyoming, Colorado, Utah, Arizona, and New Mexico (Behnke 1992). In Colorado, this species was found on the west slope in most of the larger rivers including the White, Yampa, and Colorado. Today, remaining CRCT populations are primarily limited to small headwater streams and lakes within their historic range. Declines in CRCT distribution have been documented in a number of reports (Behnke and Zarn 1976, Binns 1977, Martinez 1988, Young 1995). Young (1995) determined most lotic populations reside in streams with average daily flows less than 0.85 m<sup>3</sup>/s (30 cfs). Stream gradients usually exceeded 4%, and all populations were found above 2,290 m (7,500 ft). Behnke (1979) stated that CRCT occupy less than one percent of its historical range, though a more rigorous assessment indicates that the true number lies closer to 14 percent (Hirsch et al. 2006).

Reasons for the decline of this species are many and threats include introduction of non-native trout species, reduced habitat quality, and water diversions, among others. In the case of East Fork Parachute Creek, the presence of introduced brook trout is the main causal factor for the decline in the native cutthroat population. It is well documented that brook trout can and will out-compete native cutthroat trout.

To help improve and protect populations of CRCT a rangewide document titled: “**Conservation Agreement and Strategy for Colorado River Cutthroat Trout (*Oncorhynchus clarkii pleuriticus*) in the States of Colorado, Utah, and Wyoming, June 2006**” was completed for this species. The document is not regulatory, but does provide direction with regard to objectives and strategies to improve habitat and maintain and enhance populations. This proposed project would implement **Objective 2: Secure and enhance conservation populations** via **Strategy 2: Secure CRCT conservation populations by constructing in-channel barriers**. Specifically it states: “If natural barriers cannot be used, in-channel barriers will be constructed downstream of the populations at risk from invasion by non-native fish species or hybridized cutthroat populations. Maintenance schedules appropriate to each type of barrier will be developed, and maintenance work funded and completed”.

## **DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

### **Proposed Action:**

The proposed action is to construct a panel wall fish passage barrier within and spanning the channel of East Fork Parachute Creek at the bottom of the Third Water Gulch (Road #8010). In addition, a small amount of bank stabilization would take place immediately upstream of the barrier site.

### *Project Site Characteristics*

The project site is on East Fork Parachute Creek. Riparian habitat at the site consists primarily of willows with some sedges, rushes, tufted hair grass, red top, and meadow barley. Upland habitat adjacent to the project site includes subalpine fir, sagebrush, snowberry, houndstongue, Canada thistle, and various grasses and forbs. Less than 0.1 acres of vegetation within and immediately adjacent to the creek would be disturbed to accommodate construction of the barrier. It is estimated that up to 5 large (10' tall or greater) individual willow plants could be removed to accommodate placement of the barrier.

### *Structure Size*

The barrier would be approximately 43 feet wide, 14 feet long including a cement splash pad on the downstream side, counter weight fill rocks on the up and downstream sides, associated footings, and the panel wall itself, and 6 feet tall from the main channel water surface.

#### *Materials*

The panel walls would be constructed primarily of concrete. Other material would include native shale rock for counterweight, natural wood, and ornamental concrete (color to be determined via input from Visual Resource Management Specialist) to provide a natural wood or rock appearance to blend with the natural environment.

#### *Equipment*

Equipment to be used for construction would include regular-sized pickup trucks, a small dump truck, up to 2 cement mixers, a small excavator, a skid steer, a jack hammer, a generator, and a water pump.

#### *Staging & Camping Areas*

Two staging areas are proposed. The small informal parking area above the project site would be used to stage vehicles and some equipment. The uplands immediately adjacent to the creek that have been used as an informal camping area would be used to stage additional equipment, cement mixers, generator, pump, cement mix, skid steer, and excavator during construction. Both areas have been used and are disturbed but temporary new disturbance would be approximately 0.25 acres. The volume of construction traffic would be low, and the transport of equipment and materials would not be expected to disrupt public use of roadways. No road closures or traffic delays associated with construction activities are anticipated.

Throughout the project, construction and engineering oversight personnel would plan to camp up on the Roan Plateau at existing (already disturbed) dispersed campsites.

#### *Disturbance Footprint/Cut and Fill Amounts*

It is expected that the total amount of cut and fill would not exceed 150 cubic yards of material. Shale rock that is excavated would be used as the counterweight fill to support and stabilize the panel wall structure. Should additional counterweight fill rock be needed it would be obtained off of BLM lands and imported to the site via truck. It is estimated that temporary disturbance will be 0.75 acres including the stream bank stabilization work, barrier construction, and the use of staging areas. The structure itself once completed would permanently occupy approximately 0.1 acres. However, the barrier would back up water and create a pond estimated at 0.55 acres. This is slightly larger but similar in size to existing beaver ponds located both up and down stream of the project site.

#### *Construction*

Work would be completed by a combination of heavy equipment excavation and hand work. During construction it is expected that the creek would either be diverted around or through the structure (through a left out wall panel) for the majority of construction. When the structure is near completion water will be temporarily dammed upstream via an earthen embankment so that placement of the final panel wall can be completed, the embankment removed and the stream allowed to resume flow. Material excavated from the site would be used to build any temporary diversion features. Diverted streamflow would remain within the existing low-flow channel. Upon completion of the barrier, the stream would be rerouted to its original course and proceed to flow over the barrier.

Geomorphic characteristics at the site facilitate construction of a barrier with relatively minimal stream impact. A shale rock wall is located on the south side of the stream and the barrier would be tied into this feature via some minor excavation and grouting to seal the cement panel wall to the native shale wall. The project location has been adjusted to avoid hanging garden *Sullivantia* plants found on these cliffs but

some minimal impact could occur and is addressed in this document. The north bank would have some minimal stabilization work done on the upstream end to maintain bank integrity and provide an anchor for the panel wall into the native bank material that consists of more fine soils and less bedrock material. Native stream bottom shale acts as bedrock which would help to stabilize the barrier. The construction of a cement splash pad on the downstream side of the barrier would eliminate the potential for channel scour and pool creation below the structure.

Some limited prefabrication of panel walls would be done offsite and pieces brought to the site. However, the majority of the panel walls would be fabricated onsite to ensure a more uniform fit and reduce complications with fitting panels onsite and damage from transport to the site. The panels would be fit together to form a barrier across the creek and tied into the stream banks and stream bottom. Additional cement needed for panel wall construction would be mixed on site and used to create the splash pad, footers, and base of the structure. Excavation into the channel bed would occur to create a place for the footers and eliminate potential scour beneath the structure. Fill rocks would be placed on top of geotextile fabric material on the upstream side of the panel walls for counterweight to eliminate structure movement, and to further eliminate the potential for small fish passage through the structure. The panel face would be finished with stamped concrete and faced with natural wood (Doug-fir logs) to create a “natural” looking structure that would blend with the natural environment.

#### *BMP's (Best Management Practices)*

The use of sediment controls structures including silt fencing, straw wattles, and hay bales would be used to retain soils and eliminate excessive sedimentation. In addition, fuel containment storage and fueling areas will be provided. Upon completion of construction, disturbed areas would be re-contoured and revegetated via the planting of native 5-gallon willow plants and broadcast seeding followed by raking of seed containing native, certified weed free grasses and forbs.

#### *Timeframes for Construction*

Work is anticipated to begin near the end of August or first part of September 2011. It is estimated that it could take up to 6 weeks to complete all portions of the project, including initial staging to final recontouring, and reclamation. All work will be done during daylight hours. To minimize impacts to archery hunters, no work would be performed on weekends during the duration of construction.

#### *Contractor Performing the Work*

All work would be performed by Ecological Resource Consultants, Inc. (ERC) or their designated sub-contractors via a contract to be administered by Trout Unlimited, the majority funding partner for the project. Any and all mitigation identified and carried forward in this EA will be subject to implementation and completion and included in TU's contract with ERC, Inc.

#### *BLM Project Oversight*

Tom Fresques, Gregor Dekleva, or other BLM Specialists as designated will serve as Project Inspectors to ensure that all requirements and/or mitigation within this EA are being adhered to and that the project is being constructed as outlined. A Cultural Resource Monitor would likely be required during excavation work and would be provided by BLM as needed.

#### *Engineered Drawing of the Proposed Structure*

Please see Attachment 2 for a detailed schematic of the proposed barrier.





Project Site

**No Action Alternative:**

Under this alternative, no in-channel fish barrier would be constructed.

**ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:**

Other than variations in barrier type, no other reasonable alternatives to preclude brook trout movement above the target site were identified.

**PURPOSE AND NEED FOR THE ACTION:**

East Fork Parachute Creek contains a rapidly declining population of genetically pure Colorado River Cutthroat trout, a BLM Sensitive Species. The fish residing in the creek are some of the most genetically pure in the state and this population is identified as a Core Conservation population. However, in addition to cutthroat, the stream contains an increasing population of non-native brook trout. Brook trout are out-competing native cutthroat and are threatening the long-term persistence of cutthroat trout in this stream. It is estimated that without action to eliminate brook trout, Colorado River cutthroat trout will be completely gone from the creek in 1-3 years.

In order to initiate restoration efforts, an in-channel fish barrier needs to be constructed to begin to separate the brook trout from the cutthroat trout. A barrier of sufficient size and design will eliminate upstream movement of brook trout so that efforts to reclaim the stream segment located above the barrier can be initiated. This barrier would be the first step towards the long-term goal of eliminating or at a minimum significantly reducing the amount of stream length occupied by non-native brook trout.

## PLAN CONFORMANCE REVIEW

The proposed action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Glenwood Springs Resource Management Plan.

Date Approved: Jan. 1984, revised 1988, amended in November 1991 – Oil and Gas Leasing and Development – Final Supplemental Environmental Impact Statement; amended Nov. 1996 – Colorado Standards and Guidelines; amended in August 1997 – Castle Peak Travel Management Plan; amended in March 1999 – Oil and Gas Leasing & Development Final Supplemental Environmental Impact Statement; amended in November 1999 – Red Hill Plan Amendment; amended in September 2002 – Fire Management Plan for Wildland Fire Management and Prescriptive Vegetation Treatment Guidance; amended in June 2007 – Record of Decision for the Approval of Portions of the Roan Plateau Resource Management Plan Amendment; and amended in March 2009 – Record of Decision for the Designation of Areas of Critical Environmental Concern for the Roan Plateau Resource Management Plan.

Decision Number/Page: The proposed action is within the East Fork Parachute Creek Area of Critical Environmental Concern (ACEC).

Decision Number/Page: Goal and Management Action 2, page 7 of the Record of Decision (ROD) Designation of ACECs for the Roan Plateau Resource Management Plan.

Decision Language: Protect relevant and important values in the four designated ACECs. Apply specific management actions that will protect the relevant and important values in the ACECs

Decision Number/Page: SSFW-7, page 27 of the Record of Decision (ROD) for the Roan Plateau Approved Resource Management Plan Amendment.

Decision Language: “Consider activities designed to provide long-term habitat improvement or protection, such as culvert or bridge installation or bank stabilization.”

The project site is located within the East Fork Parachute Creek Area of Critical Environmental Concern (ACEC). Given the project location, it is subject to the following resource stipulations and must meet the exception criteria to be considered viable:

- *NGD/NSO High and moderate risk fish habitat*  
The project would meet the exception criteria as it would have short-term negative but non chronic effects (which are disclosed in this document) and long-term benefits to the resident cutthroat trout population. Appropriate mitigation to minimize impacts has been identified and is part of the proposed action.
- *NGD/NSO Riparian and Wetland Habitat*  
The project would meet the exception criteria as it would result in less than 0.1 acres of ground disturbance and less than 100 linear feet of disturbance per mile. Anticipated loss of riparian vegetation would be offset by replacement at a greater than required ratio (3:1 vs. 1:1) of 5-gallon potted plants. Riparian values would expect to be replaced within the two year timeframe required.
- *NSO Wild and Scenic River eligible segment*  
The project would meet the exception criteria because the project would have long-term benefits to the primary Outstanding Remarkable Value (ORV) in this case pure Colorado River cutthroat

trout. The project would have short-term negative effects that are disclosed in this document but long-term free flowing criteria would be preserved. In addition, the project site is located in a segment that is classified as Scenic which does allow for some minor alterations while still complying with the act.

- *SSR/CSU within 500 feet of the outer edge of the wetland or riparian area.*  
The project would comply with this CSU and any special design, construction, mitigation, or reclamation measures identified in this NEPA document would be required as part of the construction action and included in the construction contract. In addition, the planned mitigation under the Riparian and Wetland NGD/NSO would help to mitigate short-term negative effects.
- *CSU on hanging garden habitat*  
The project design complies with this CSU by avoiding direct disturbances of hanging garden populations in the canyon wall along the south side of the creek. Surface disturbances would be promptly revegetated with native species to minimize risk of invasion by noxious weeds or other aggressive, non-native plant species.
- *CSU Wildlife Security areas above the rim*  
The project would comply with this CSU as specific wildlife resource impacts and concerns identified in this NEPA document would be addressed as needed and required mitigation would be implemented as part of the construction action.
- *CSU Parachute Creek high value watershed and Watershed Management Area (WMA)*  
The project would comply with this CSU as short-term but non chronic negative effects of the action will be disclosed in this NEPA document. The project would have long-term benefits to important resource values (Colorado River cutthroat trout) that reside within the WMA and appropriate mitigation is incorporated into the proposed action.

Standards for Public Land Health: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. The five standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands.

A Land Health Assessment was completed for the Roan Cliffs Area in 1999. The report summarizing the findings of the assessment stated the following; “*Standard 3 is not being met for JQS Gulch or East Fork Parachute Creek due to the ongoing decline of native CRCT in these streams. Native CRCT are not being maintained at a viable population level commensurate with the species and the habitat’s potential. CRCT are not spatially distributed within these creeks at a density, composition, or frequency suitable to sustain the population. Extremely low survival of age-0 CRCT indicates that these fish are not present in mixed age classes necessary to sustain recruitment and mortality fluctuations.*” Further, the report recommends the following: “*The only solution to recovering CRCT populations in JQS Gulch and East Fork Parachute Creek would be to remove brook trout from these streams.*”

Because a standard exists for these five categories, the impact analysis must address whether the proposed action or any alternatives being analyzed would result in impacts that would maintain, improve, or deteriorate land health conditions for that specific parameter. These analyses are located in specific elements listed below.

## **AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

This section provides a description of the human and natural environmental resources that could be affected by the proposed action and no action alternative. In addition, the section presents comparative analyses of the direct and indirect consequences on the affected environment stemming from the implementation of the various actions.

A variety of laws, regulations, and policy directives mandate the evaluation of the effects of a proposed action and alternative(s) on certain critical environmental elements. Not all of the critical elements that require inclusion in this EA are present, or if they are present, may not be affected by the proposed action and alternative (Table 1). Only those mandatory critical elements that are present and affected are described in the following narrative.

In addition to the mandatory critical elements, there are additional resources that would be impacted by the proposed action and alternative. These are presented under **Other Affected Resources**.

### **Critical Elements**

**Table 1**

<b>Table 1. Critical Elements of the Human Environment</b>									
<i>Critical Element</i>	<i>Present</i>		<i>Affected</i>		<i>Critical Element</i>	<i>Present</i>		<i>Affected</i>	
	Yes	No	Yes	No		Yes	No	Yes	No
Air Quality	X			X	Prime or Unique Farmlands		X		X
ACECs	X		X		Special Status Species*	X		X	
Cultural Resources		X		X	Wastes, Hazardous or Solid	X		X	
Environmental Justice	X			X	Water Quality, Surface and Ground*	X		X	
Floodplains	X			X	Wetlands and Riparian Zones*	X		X	
Invasive, Non-native Species	X		X		Wild and Scenic Rivers	X		X	
Migratory Birds	X			X	Wilderness/ WSAs	X		X	
Native American Religious Concerns		X		X					

\* Public Land Health Standard

## **AIR QUALITY**

### **Affected Environment:**

The project area encompasses a very small portion of the Roan Plateau. A detailed assessment of the air quality in the region is presented in the Roan Plateau RMPA/EIS (BLM 2006). Although specific air quality monitoring has not been conducted within the project area, regional air quality monitoring is generally good based on regional monitoring. Air pollutants measured in the region for which ambient air quality standards exist include carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), particulate matter less than 10 microns (μ) in diameter (PM<sub>10</sub>) and less than 2.5 μ in diameter (PM<sub>2.5</sub>), and sulfur dioxide (SO<sub>2</sub>). The project area has been described as an attainment area under Colorado AAQS and NAAQS. An attainment area is an area in which ambient air pollution quantities are below (i.e., better than) NAAQS standards. As shown in Table 1, regional background values are well below established standards, and all areas within the cumulative study area are designated as attainment for all criteria pollutants. Federal air quality regulations are enforced by the Colorado Department of Public Health and Environment (CDPHE).



The Prevention of Significant Deterioration (PSD) Program within CDPHE is designed to limit incremental increases for specific air pollutant concentrations above a legally defined baseline level, as defined by an area's air quality classification. Incremental increases in PSD Class I areas are strictly limited. All NEPA analysis comparisons to the PSD Class I and II increments are intended to evaluate a "threshold of concern."

The project area and surrounding areas are classified as PSD Class II. The PSD Class I areas located within 100 miles are Flat Tops Wilderness, Maroon Bells – Snowmass Wilderness, West Elk Wilderness, Black Canyon of the Gunnison National Monument, and Eagles Nest Wilderness. Current Colorado and National AAQS and PSD Class I and II increments are provided in Table 2.

**Table 2. Air Pollutant Background, Ambient Air Quality Standards, and Prevention of Significant Deterioration Incremental Concentrations ( $\mu\text{g}/\text{m}^3$ ) by Applicable Averaging Time**

<i>Pollutant and Averaging Time</i>	<i>Measured Background Concentration<sup>1</sup></i>	<i>National AAQS</i>	<i>Colorado AAQS</i>	<i>PSD Class I Increment</i>	<i>PSD Class II Increment</i>
Carbon Monoxide (CO)					
1 hour	8,000	40,000	--	NA	NA
8 hours	4,444	10,000	--	NA	NA
Particulate Matter (PM <sub>10</sub> )					
24 hours	54	150	--	8	30
Annual	24	50	--	4	17
Particulate Matter (PM <sub>2.5</sub> )					
24 hours	19	65	--	NA	NA
Annual	7	15	--	NA	NA
Sulfur Dioxide (SO <sub>2</sub> )					
3 hours	110	1,300	700	25	512
24 hours	39	365	--	5	91
Annual	11	80	--	2	20
Nitrogen Dioxide (NO <sub>2</sub> )					
Annual	34	100	--	2.5	25

<sup>1</sup>All background values from Trinity 2003.

#### Environmental Consequences/Mitigation:

##### Proposed Action:

Construction of the fish barrier would result in short-term localized emissions from heavy equipment and vehicle operations to transport personnel, equipment, and materials to and from the project area. These effects would be minor, of short duration, and overall would have little or no effect on local air quality. Since emissions and dust would be minimal and short-lived, no mitigation is recommended for these activities.

##### No Action:

No air quality impacts would occur.

#### **AREAS OF CRITICAL ENVIRONMENTAL CONCERN**

Affected Environment:

The proposed action is located within the East Fork Parachute Creek ACEC which originates near the eastern rim of the Roan Plateau and flows westward, cutting through the Green River Shale to form a deep canyon before plunging 200 feet into a narrow scenic box canyon. The resource values found within the East Fork Parachute Creek ACEC are a scenic 200-foot high waterfall and deep box canyon; Colorado River cutthroat trout; the Roan Cliffs blazing star; and five significant plant communities. The plant communities include hanging garden sullivanian, a Green River Shale endemic plant; Colorado blue spruce/red osier dogwood and boxelder-narrowleaf cottonwood/red-osier dogwood riparian communities; a Great Basin wild rye grassland community; and an Indian ricegrass/shale barrens community.

Within the influence zone of the project area are the following select resource values:

- Colorado River cutthroat trout
- Hanging garden sullivanian

The 2008 ROD for the Designation of Areas of Critical Environmental Concern for the Roan Plateau RMP Amendment and EIS (page ROD-35) prescribed protective measures (NGD/NSO for fish habitat and SSR/CSU to protect significant plant communities) to preserve the identified relevant and important values within the affected portion of the ACEC.

Environmental Consequences/Mitigation:

Proposed Action:

*Colorado River cutthroat trout*

Short-term and site specific effects and long-term benefits are addressed in detail the Special Status Aquatic Wildlife Species section. In summary,

The proposed fish barrier project occurs within the East Fork Parachute Creek. Brook trout are out-competing native cutthroat and are threatening the long-term persistence of cutthroat trout in this stream. In order to initiate restoration efforts, an in-channel fish barrier needs to be constructed to begin to separate the brook trout from the cutthroat trout. A barrier of sufficient size and design will eliminate upstream movement of brook trout so that efforts to reclaim the stream segment located above the barrier can be initiated. This barrier would be the first step towards the long-term goal of eliminating or at a minimum significantly reducing the amount of stream length occupied by non-native brook trout.

There is potential for limited sediment input, and a very small loss of riparian vegetation, in the short term. These effects would be minimal as the proposed action calls for sediment control structures to eliminate offsite soil movement and the planting of willows in disturbed areas at a 3:1 ratio for each plant removed. Long-term benefits would be the removal and separation of brook trout from native cutthroat trout.

The project would meet the exception criteria for the NSO because the project would have long-term benefits to the Colorado River cutthroat trout which is the primary resource value protected by the NSO.

*Hanging garden sullivanian*

The project location has been adjusted to avoid or minimize any losses of hanging garden sullivanian. However, minor excavation of the canyon wall which is needed to anchor the fish barrier to the cliff wall may result in a loss of a few plants of Hanging garden Sullivanian. This would represent a very minor

proportion of the entire population in East Fork Parachute Creek and would not diminish long-term viability of the population.

The project would meet the exception criteria for the CSU because the project has been designed to avoid or minimize impacts to the Hanging garden Sullivantia. A few select individual plants may be impacted while anchoring the fish barrier to the canyon wall but the ecological integrity and function of the significant plant community would be maintained.

No Action:

*Colorado River cutthroat trout*

Under the No Action alternative, no barrier would be constructed and no short-term site specific impacts or long-term benefits to Colorado River cutthroat trout would result.

*Hanging garden sullivania*

Under the No Action alternative, no barrier would be constructed and no impacts to Hanging garden Sullivantia would result.

## CULTURAL RESOURCES

### Affected Environment:

Three large Class III cultural resource inventories (CRVFO #s 786 and 8396 a & b and SHPO # GF.LM.R194) were conducted for the Naval Oil Shale Reserve in 1973, 1981 and 1996, and include portions that overlap the East Fork Parachute Creek Fish Barrier project area. No cultural resources have been located or reported within the proposed fish barrier project area. Therefore, no “historic properties” are identified as being within the area of the Proposed Action. “Historic properties” are cultural resources that are eligible or potentially eligible for inclusion on the National Register of Historic Places (NRHP).

### Environmental Consequences/Mitigation:

#### Proposed Action:

The implementation of the Proposed Action would have no direct impacts to known “historic properties”, as none have been identified in the project’s immediate vicinity.

Therefore, the BLM made a determination of “**No Historic Properties Affected.**” This determination was made in accordance with the 2001 revised regulations [36CFR 800.4(d)(1)] for Section 106 of the National Historic Preservation Act (16U.S.C 470f), the BLM/State Historic Preservation Officer (SHPO) Programmatic Agreement (1997) and Colorado Protocol (1998)]. As the BLM has determined that the Proposed Action would have no direct impacts to known “historic properties,” no formal consultation was initiated with the SHPO.

Although there are no known “historic properties” in the project area, archaeological monitoring of construction activities is still recommended and will be conducted by the BLM-CRVFO archaeologist. No ground disturbing construction activities (topsoiling, grading, excavation, etc.) will begin prior to the archaeologist’s arrival. The CRVFO archaeologist will be on site as long as the BLM deems necessary.

In addition to the monitoring, a standard Education/Discovery COA for cultural resource protection would be attached to the Surface Use Conditions of Approval. The importance of this COA should be

stressed to the operator and its contractors, including informing them of their responsibilities to protect and report any cultural resources encountered during construction operations.

**No Action:**

Under the No Action alternative, no barrier would be constructed and no impact to known and unknown cultural resources would result.

## ENVIRONMENTAL JUSTICE

### Affected Environment:

Review of 2001 data from US Census Bureau indicates the median annual income of Garfield County averages \$43,560 and is neither an impoverished or wealthy county. Median annual income of Eagle County averages \$51,578 and is not impoverished but is considered a wealthy county. U.S. Census Bureau data from July, 2002 shows the minority population of Garfield and Eagle County comprises less than 3 % of the total population<sup>1</sup>.

Garfield County		Eagle County	
Median Household Income		Median Household Income	
Estimate	90% Confidence Interval	Estimate	90% Confidence Interval
\$43,560	\$40,491 to \$46,613	\$51,578	\$47,958 to \$55,177

### Environmental Consequences/Mitigation:

**Proposed Action:**

The proposed action and alternatives are not expected to create a disproportionately high and adverse human health impact or environmental effect on minority or low-income populations within the area.

**No Action:**

Under the No Action alternative no impacts to minority or low-income populations would occur.

## INVASIVE, NON-NATIVE SPECIES

### Affected Environment:

To date, limited weed mapping has occurred on the Roan Plateau. Observations by various BLM biologists have provided most of the information on weed distribution. Weed mapping on the Roan Plateau by the BLM is scheduled to be completed in 2011. Information on weeds gathered over the next year would be used to determine appropriate treatments in relation to the proposed action.

Houndstongue (*Cynoglossum officinale*) is the most prevalent weed on the Roan Plateau. It occurs in most drainages and is scattered in the uplands. Biennial thistles including bull thistle (*Cirsium vulgare*), musk thistle (*Carduus nutans*), and plumeless thistle (*Carduus acanthoides*), are frequently found in the uplands and drainages. Canada thistle (*Breca arvense*) occurs along almost every riparian reach, sometimes in dense populations, and both Canada thistle and houndstongue occur along most roads on

<sup>1</sup> Table CO-EST2002-ASRO-02-08-County Population Estimates by Race Alone and Hispanic or Latino Origin: July 1, 2002  
Source: Population Division, U.S. Census Bureau  
Release Date: September 18, 2003  
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top of the plateau. East Fork Parachute Creek at the project site contains large amounts of houndstongue and Canada thistle along the creek and in the uplands adjacent to the creek.

#### Environmental Consequences/Mitigation:

##### Proposed Action:

It is likely that noxious and invasive weeds would initially increase as a result of the disturbance associated with the project. Surface-disturbing activities such as in the proposed action provide a niche for the establishment and expansion of invasive non-native species, particularly when these species are already present in the surrounding area. Additionally, vehicles and equipment could introduce and spread noxious and invasive weed seeds.

To help minimize the potential for spread of invasive non-native species during or after project construction, the project inspector would ensure that equipment involved in surface disturbing actions is clean of noxious weed seeds or propagative parts prior to entry onsite. Post-construction weed monitoring and treatments would be conducted for three years following construction. Any Colorado-listed noxious weeds would be promptly treated and controlled according to the appropriate timing for each particular weed species. Staging of vehicles and equipment would not occur in weed-infested areas.

##### No Action:

Under this alternative, none of the ground disturbance associated with the proposed action would occur. Noxious and invasive plant species would be expected to continue at current levels.

## **MIGRATORY BIRDS**

#### Affected Environment:

BLM Instruction Memorandum No. 2008-050 provides guidance toward meeting the Bureau of Land Management's (BLM) responsibilities under the Migratory Bird Treaty Act (MBTA) and the Executive Order (EO) 13186. The guidance directs Field Offices to promote the maintenance and improvement of habitat quantity and quality. To avoid, reduce or mitigate adverse impacts on the habitats of migratory bird species of conservation concern to the extent feasible, and in a manner consistent with regional or statewide bird conservation priorities.

The MBTA prohibits the "take" of a protected species. Under the Act, the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The USFWS interprets "harm" and "kill" to include loss of eggs or nestlings due to abandonment or reduced attentiveness by one or both adults as a result of disturbance by human activity, as well as physical destruction of an occupied nest.

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973." The "*Birds of Conservation Concern 2008*" (USFWS 2010) is the most recent effort to carry out this mandate. The conservation concerns are the result of population declines - naturally or human-caused, small ranges or population sizes, threats to habitat, or other factors. Although there are general patterns that can be inferred, there is no single reason why any species was on the list. Habitat loss is believed to be the major reason for the declines of many species. When considering potential impacts to migratory birds the impact on habitat, including: 1) the degree of fragmentation/connectivity expected from the proposed project relative to before the proposed project; and 2) the fragmentation/connectivity within and between habitat types (e.g., within nesting habitat or between nesting and feeding habitats. Continued private land development, surface

disturbing actions in key habitats (e.g. riparian areas) and the proliferation of roads, pipelines, powerlines and trails are local factors that reduce habitat quality and quantity for many species.

The Colorado River Valley Field Office (CRVFO) is within the Southern Rockies/Colorado Plateau Bird Conservation Region (BCR). The 2008 list of Birds of Conservation Concern are described in Table 3.

**Table 3 - 2008 List of Birds of Conservation Concern within the CRVFO.**

Species	Information/Range/Habitat Description	Occurrences/ Potentially Impacted
Gunnison Sage-Grouse ( <i>Centrocercus minimus</i> )	Sagebrush communities for hiding and thermal cover, food, and nesting; open areas with sagebrush stands for leks; sagebrush-grass-forb mix for nesting; wet meadows for rearing chicks. Not found within the CRVFO.	Not Present/No
American Bittern ( <i>Botaurus lentiginosus</i> )	Inhabits marshes and wetlands; ground nester. Summer resident in Colorado.	Not Present/No
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	Bald eagles were removed from the federal threatened and endangered species list in 2007 but are still protected under the MBTA. Bald eagles occasionally summer in this region but usually winter (mid-Nov. to mid-April) along portions of the Colorado, Eagle and Roaring Fork Rivers and their major tributaries. Large mature cottonwood trees along the rivers and their major tributaries are used as roosting and perching sites, and these waterways provide the main food sources of fish and waterfowl. Upland habitats adjacent to these waterways are used as scavenging areas.	Not Present/No
Ferruginous Hawk ( <i>Buteo regalis</i> )	Open, rolling and/or rugged terrain in grasslands and shrubsteppe communities; also grasslands and cultivated fields; nests on cliffs and rocky outcrops. Fall/winter resident, non-breeding.	Not Present/No
Golden Eagle ( <i>Aquila chrysaetos</i> )	Open country, grasslands, woodlands, and barren areas in hilly or mountainous terrain; nests on rocky outcrops or large trees. Year-round resident, breeding.	Irregular/No
Peregrine Falcon ( <i>Falco peregrines</i> )	Open country near cliff habitat, often near water such as rivers, lakes, and marshes; nests on ledges or holes on cliff faces and crags. Spring/summer resident, breeding.	Irregular in the Anvil Points area/No
Prairie Falcon ( <i>Falco mexicanus</i> )	Open country in mountains, steppe, or prairie; winters in cultivated fields; nests in holes or on ledges on rocky cliffs or embankments. Spring/summer resident, breeding.	Not Present/No
Snowy Plover ( <i>Charadrius alexandrinus nivosus/tenuirostris</i> )	Sparsely vegetated sand flats associated with pickleweed, greasewood, and saltgrass. Spring migrant, non-breeding. Spring migrant, non-breeding.	Not Present/No
Mountain Plover ( <i>Charadrius montanus</i> )	High plain, cultivated fields, desert scrublands, and sagebrush habitats, often in association with heavy grazing, sometimes in association with prairie dog colonies; short vegetation.	Not Present/No
Long-billed Curlew ( <i>Numenius americanus</i> )	Lakes and wetlands and adjacent grassland and shrub communities. Spring/fall migrant, non-breeding.	Not Present/No
Burrowing Owl ( <i>Athene cunicularia</i> )	Open grasslands and low shrublands often in association with prairie dog colonies; nests in abandoned burrows created by mammals; short vegetation.	Not Present/No
Lewis's Woodpecker ( <i>Melanerpes lewis</i> )	Open woodland, often logged or burned, including oak, coniferous forest (often ponderosa), riparian woodland, and orchards, less often in pinyon-juniper.	Not Present/No

Species	Information/Range/Habitat Description	Occurrences/ Potentially Impacted
Willow Flycatcher ( <i>Empidonax traillii</i> )	Riparian and moist, shrubby areas; winters in shrubby openings with short vegetation. Fairly common summer resident in open valleys and mountain parks, breeding.	Possible/No
Gray Vireo ( <i>Vireo vicinior</i> )	Uncommon summer resident (primarily Mesa County). In habitats open pinyon-juniper woodlands.	Not Present/No
Pinyon Jay ( <i>Gymnorhinus cyanocephalus</i> )	Common to abundant resident of pinyon-juniper woodlands. Year-round resident that travels broadly in flocks.	Not Present/No
Juniper Titmouse ( <i>Baeolophus ridgwayi</i> )	Pinyon-juniper woodlands, especially juniper; nests in tree cavities. Requires mature tree cavities for nesting and roosting. Year-round resident, breeding.	Not Present/No
Veery ( <i>Catharus fuscescens</i> )	Dense riparian thickets and hillside brush near streams. Uncommon spring/fall migrant in Eastern Colorado.	Not Present/No
Bendire's Thrasher ( <i>Toxostoma bendirei</i> )	Desert, especially areas of tall vegetation, cholla cactus, creosote bush and yucca, and in juniper woodland Possible summer resident.	Not Present/No
Grace's Warbler ( <i>Dendroica graciae</i> )	Breeds in ponderosa pine forests. Uncommon summer resident in southwest Colorado.	Not Present/No
Grasshopper Sparrow ( <i>Ammodramus savannarum</i> )	Open grasslands and cultivated fields. Uncommon, non-breeding spring migrant in western Colorado and common summer resident in eastern Colorado.	Not Present/No
Chestnut-collared Longspur ( <i>Calcarius ornatus</i> )	Open grasslands and cultivated fields. Uncommon, non-breeding spring migrant in western Colorado and common summer resident in eastern Colorado.	Not Present/No
Black Rosy-Finch ( <i>Leucosticte atrata</i> )	Open country including mountain meadows, high deserts, valleys. Breeds/nests in alpine areas near rock piles and cliffs. Irregular to rare winter resident, non-breeding.	Not Present/No
Brown-capped Rosy-Finch ( <i>Leucosticte australis</i> )	Summer resident/breeding in alpine meadows, cliffs, and talus and high-elevation parks and valleys. Irregular to rare winter resident in lower mountain areas.	Not Present/No
Cassin's Finch ( <i>Carpodacus cassinii</i> ).	Open montane coniferous forests; breeds/ nests in coniferous forests. Year-round resident, breeding.	Not Present/No
Yellow-billed Cuckoo ( <i>Coccyzus americanus</i> )	See Threatened, Endangered and Sensitive Species – Terrestrial Wildlife	
Brewer's Sparrow ( <i>Spizella breweri</i> )	See Threatened, Endangered and Sensitive Species – Terrestrial Wildlife	

#### Environmental Consequences/Mitigation:

##### Proposed Action:

The construction activities may disturb migratory bird species that inhabit the immediate area. The authorized use period is after the nesting/fledging period for birds with a potential to be present. The overall impact is likely short-term, temporary during daylight hours and would only affect individuals immediately in the project area.

##### No Action:

Under the No Action alternative, no barrier would be constructed and no disturbance would occur.

#### **NATIVE AMERICAN RELIGIOUS CONCERNS**

Affected Environment:

The Proposed Action is located within an area identified by the Ute Tribes as part of their ancestral homeland. A number of Class III cultural resource inventories (see section on Cultural Resources) were conducted for a variety of oil & gas related projects in the Proposed Action's vicinity to determine if any areas were known to be culturally sensitive to Native Americans. No sensitive areas were identified or are currently known in the proposed project area.

Environmental Consequences:

**Proposed Action:**

At present, no Native American concerns are known within the project area and none was identified during the inventories. The Ute Tribe of the Uintah and Ouray Bands, the primary Native American tribe in this area of the CRVFO, have indicated that they do not wish to be consulted for small projects or projects where no Native American areas of concern have been identified either through survey or past consultations. Therefore, formal consultation was not undertaken. If new data are disclosed, new terms and conditions may have to be negotiated to accommodate their concerns.

Although the Proposed Action would have no direct impacts, short-term access and personnel in the vicinity of the proposed project could indirectly impact unknown Native American resources ranging from illegal collection to vandalism.

The National Historic Preservation Act (NHPA) requires that if newly discovered cultural resources are identified during project implementation, work in that area must stop and the agency Authorized Officer notified immediately (36 CFR 800.13). The Native American Graves Protection and Repatriation Act (NAGPRA), requires that if inadvertent discovery of Native American Remains or Objects occurs, activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice made to the agency Authorized Officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)). Further actions also require compliance under the provisions of NHPA and the Archaeological Resource Protection Act. Staff and contractors will be notified of the requirement under the NHPA, that work must cease if cultural resources are found during project operations. A standard Education/Discovery COA for the protection of Native American values would be attached to the APDs (Appendix A). The importance of these COAs should be stressed to the operator and its contractors, including informing them of their responsibilities to protect and report any cultural resources encountered. The proponent and contractors should also be aware of requirements under the NAGPRA.

**No Action:**

Under the No Action alternative, no barrier would be constructed and no impact to known and unknown cultural resources would result.

**SPECIAL STATUS PLANT SPECIES (includes an analysis of Public Land Health Standard 4)**

Affected Environment:

Table 4 summarizes the 2010 species list from the U. S. Fish and Wildlife Service for Federally listed, proposed, or candidate plant species (USFWS 2010) and the November 2009 Colorado BLM State Director's Sensitive Species List for BLM sensitive plants (BLM 2009) that may occur within Garfield County and be impacted by the proposed action.

**Table 4 Special Status Plant Species in Garfield County**

Federally Listed, Proposed or Candidate Plant Species
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Species	Habitat	Potential Habitat Present / Absent
Colorado hookless cactus ( <i>Sclerocactus glaucus</i> )	Typically found on rocky hills and alluvial benches in xeric fine-textured soils overlain with cobbles and pebbles. It grows in salt desert shrub and pinyon-juniper communities at elevations ranging from approximately 4,500 to 6,600 feet.	<b>Absent:</b> The project area is above the elevational range of this species and no rocky, salt desert shrub habitat is present.
DeBeque phacelia ( <i>Phacelia submutica</i> )	A rare annual plant restricted to expansive clay soils derived from the Atwell Gulch and Shire Members of the Wasatch Formation in Mesa and Garfield Counties, Colorado. The plant grows on sites that are nearly barren of vegetation.	<b>Absent:</b> No exposures of Atwell Gulch or Shire Members of the Wasatch formation present
Parachute penstemon ( <i>Penstemon debilis</i> )	Endemic to steep, talus slopes on the southern escarpment of the Roan Plateau in Garfield County, Colorado. The plants are found only on the oil-shale rich Parachute Creek Member of the Green River Formation between 8,000 to 9,200 feet in elevation.	<b>Potential:</b> The Green River Formation is present within the canyons of East Fork Parachute Creek, but not the specific Parachute Creek Member. No known or expected occurrences of this species.
Ute ladies'-tresses ( <i>Spiranthes diluvialis</i> )	Habitat for this threatened species is found below 6,500 feet along streams, lakes or in wetland areas with seasonally saturated or subirrigated soils.	<b>Absent:</b> The project area is above 8,000 feet, well above the upper elevational range for this species.
<b>BLM Sensitive Plant Species</b>		
Species	Habitat	Potential Habitat Present/Absent
Cathedral Bluffs meadowrue ( <i>Thalictrum heliophilum</i> )	Known from 18 occurrences in Garfield, Mesa and Rio Blanco Counties. The meadowrue is a narrowly endemic plant found in dry shale barren communities between 6,200 and 8,800 feet in elevation.	<b>Potential:</b> No dry shale barrens present in the immediate project area. No occurrences of this species documented here.
DeBeque milkvetch ( <i>Astragalus debequaeus</i> )	Found only on the Wasatch Formation in the vicinity of DeBeque and Rulison, Colorado. Plants are common on the Atwell Gulch Member of the Wasatch Formation but are rare elsewhere. Elevations of known populations are between 5,100 and 6,400 feet.	<b>Absent:</b> The project area is above the elevational range of this species and has no exposures of the Atwell Gulch Member of Wasatch Formation.
Harrington's penstemon ( <i>Penstemon harringtonii</i> )	Open sagebrush communities on rocky loam or rocky clay loam soils between the elevations of 6,200 to 10,000 feet.	<b>Absent:</b> No known populations or suitable soils exist on the Roan Plateau.
Naturita milkvetch ( <i>Astragalus naturitensis</i> )	Occurs on sandstone mesas, ledges, crevices, and slopes in pinyon-juniper woodlands at elevations from 5,000 to 7,000 feet. It grows in areas of shallow soils over exposed bedrock. Naturita milkvetch has been found in several locations on the western end of the CRVFO.	<b>Absent:</b> Site is above the elevational range of this species and no sandstone rimrock or ledges present

Piceance bladderpod ( <i>Lesquerella parviflora</i> )	A Colorado endemic known only in Garfield, Mesa, and Rio Blanco Counties. It occurs on shale outcrops of the Green River Formation, on ledges and slopes of canyons in open areas at elevations ranging from 6,200 to 8,600 feet.	<b>Potential:</b> Shale outcrops of the Green River Formation are present, but no occurrences of Piceance bladderpod have been documented anywhere in East Fork Parachute Creek.
Roan Cliffs blazing star ( <i>Mentzelia rhizomata</i> )	Found only on steep talus slopes of the Green River Formation in Garfield County. The species occurs on eroding oil shale at elevations from 5,800 to 9,000 feet. In the GSFO, the Roan Cliffs blazing star is known to occur on the cliffs of the Roan Plateau, along Parachute Creek drainage and in Main Elk Creek, near New Castle, Colorado.	<b>Potential:</b> This species has been documented along lower East Fork Parachute Creek, but the project area is too densely vegetated.

### Significant Plant Communities

Significant plant communities include communities that are (1) globally rare, (2) rare within Colorado, or (3) substantially unaltered by human activity. The first two categories include plant communities in which the individual species may not be rare, but the particular combination of species is rare or uncommon. The third category includes native plant communities that are relatively undisturbed and contain few non-native species. The only significant plant community within the project area or potentially affected by the project is Hanging garden *Sullivantia*.

Hanging Garden *Sullivantia* (*Sullivantia hapemanii* var. *purpusii*) – A Colorado endemic, this species is restricted to “hanging gardens” with a substrate of Green River Formation shale. These gardens occur where moisture seeps between layers of shale or in proximity to waterfalls. This species is most abundant on the East Fork Parachute Creek and its tributaries as well as in Northwater Creek Canyon. These populations appear stable and secure because their relative inaccessibility on steep cliffs protects them from surface disturbances, grazing, and noxious weed invasion. However, any physical disruption to the cliffs, or changes to the local hydrological processes that support the species’ habitat, could have adverse effects on these populations. While the species is known from several occurrences in five counties in western Colorado, 62 percent occur on the Roan Plateau.

### Environmental Consequences/Mitigation:

#### Proposed Action:

Due to the absence of any occupied or suitable habitat within the project vicinity, the project would have “No Effect” on any special status plant species.

The project location has been adjusted to avoid or minimize any losses of the significant plant community of Hanging garden *Sullivantia*. However, minor excavation of the canyon wall which is needed to anchor the fish barrier to the cliff wall may result in a loss of a few plants of Hanging garden *Sullivantia*. This would represent a very minor proportion of the entire population in East Fork Parachute Creek and would not diminish long-term viability of the population.

#### No Action:

Under the No Action alternative, the fish barrier would not be constructed and no impacts to any special status plants or significant plant communities would result.

Analysis on the Public Land Health Standard 4 for Special Status Plant Species: (partial, see also Special Status Plants and Terrestrial Wildlife): A formal land health assessment was conducted on the landscape which includes the project area in 1999. No special status plants were identified in the project area. The

Hanging garden *Sullivantia* significant plant communities were in a healthy and robust condition across the landscape and were meeting the Standard.

#### **SPECIAL STATUS AQUATIC WILDLIFE SPECIES (includes an analysis of Public Land Health Standard 4)**

##### Affected Environment:

Table 5 summarizes the latest: 1) species list (USFWS 2010a) from the U. S. Fish and Wildlife Service for Federally listed, proposed, or candidate aquatic wildlife species and 2) Colorado BLM State Director's Sensitive Species List for aquatic species; that may occur within the CRVFO and be impacted by the proposed action. The only species present and effected by the proposed action is Colorado River cutthroat trout.

**Table 5 – Special Status Aquatic Wildlife Species.**

Federally Listed, Proposed or Candidate Aquatic Wildlife Species		
Species	Habitat/Range	Occurrence/ Potentially Impacted
Greenback cutthroat trout ( <i>Oncorhynchus clarki stomias</i> )	Federally listed as threatened. The greenback is the subspecies of cutthroat trout native to the Platte River drainage on the Eastern Slope of Colorado, while the Colorado River cutthroat trout is the subspecies native to the Western Slope of Colorado. Historically found in cold, clear, gravely headwater streams and mountain lakes of the Arkansas and South Platte River systems in Colorado and part of Wyoming. The greenback cutthroat trout was not identified on the USFWS list for Garfield County; however, recent surveys have identified a population in Cache Creek.	Absent /No
Bonytail ( <i>Gila elegans</i> )	Federally listed as endangered. This large chub is a member of the minnow family found in large, fast-flowing waterways of the Colorado River system. Their current distribution and habitat status are largely unknown due to its rapid decline prior to research into its natural history. The bonytail is extremely rare in Colorado and no self-sustaining population exists. Only one has been captured in the state since 1980.	Absent /No
Colorado pikeminnow (formerly Colorado squawfish) ( <i>Ptychocheilus lucius</i> )	Federally listed as endangered. Primarily exists in the Green River below the confluence with the Yampa River, the lower Duchesne River in Utah, the Yampa River below Craig, Colo., the White River from Taylor Draw Dam near Rangely downstream to the confluence with the Green River, the Gunnison River in Colorado, and the Colorado River from Palisade, Colo., downstream to Lake Powell. Colorado pikeminnow populations in the upper Colorado River basin are now relatively stable or growing. Designated Critical Habitat includes the Colorado River and its 100-year floodplain west (downstream) from the town of Rifle.	Absent /No
Humpback chub ( <i>Gila cypha</i> )	Federally listed as endangered. Found in deep, clear to turbid waters of large rivers and reservoirs over mud, sand or gravel. The nearest known population of humpback chub is in the Colorado River at Black Rocks west of Grand Junction..	Absent /No

Razorback sucker ( <i>Xyrauchen texanus</i> )	Federally listed as endangered. The razorback sucker was once widespread throughout most of the Colorado River Basin from Wyoming to Mexico. In the upper Colorado River Basin, they are now found only in the upper Green River in Utah, the lower Yampa River in Colorado and occasionally in the Colorado River near Grand Junction. Because so few of these fish remain in the wild, biologists have been actively raising them in hatcheries in Utah and Colorado and stocking them in the Colorado River. Designated Critical Habitat for the razorback sucker includes the Colorado River and its 100-year floodplain west (downstream) from the town of Rifle.	Absent /No
<b>Colorado BLM Sensitive Aquatic Species</b>		
Species	Habitat/Range	Occurrence / Potentially Impacted
Northern leopard frog ( <i>Rana pipiens</i> )	Generally found between 3,500 to 11,000 feet, in wet meadows and in shallow lentic habitats. They require year-round water sources, deep enough to provide ice free refugia in the winter. Within the CRVFO, this species has been documented in locales where quality riparian vegetation exists in conjunction with perennial water sources. Larger populations of this species have been documented northwest of King Mountain within the small drainage that feeds King Mountain (Ligon) Reservoir, June Creek and East Divide Creek south of Silt, Colorado, and in portions of the Rifle Creek watershed north of Rifle, Colorado.	Absent/No
Great Basin spadefoot toad ( <i>Spea intermontana</i> ).	This toad is known to occupy a wide variety of habitat including lowlands, foothills, and shortgrass plain. This species generally inhabits and breeds in seasonal pools and ponds in pinyon-juniper woodland, sagebrush, and semi-desert shrubland habitats, mostly below 6,000 feet in elevation.	Absent /No
Boreal Toad ( <i>Bufo boreas boreas</i> )	The distribution of the boreal toad is restricted to areas with suitable breeding habitat in spruce-fir forests and alpine meadows generally between 7,500 and 12,000 feet elevation. Breeding habitat includes lakes, marshes, ponds, and bogs with sunny exposures and quiet shallow water. The CRVFO has potential habitat but no known populations.	Absent /No
Bluehead sucker ( <i>Catostomus discobolus</i> ), Flannelmouth sucker ( <i>Catostomus latipinnis</i> ), and Roundtail chub ( <i>Gila robusta</i> )	Primarily found in larger rivers but may also be found in smaller tributaries with good connectivity to larger river systems. These fish are endemic to the Colorado River basin and reside within the mainstem Colorado River and its major tributary streams. Given their biology, feeding habits, habitat needs, and niche in the ecosystem, these species can persist in the face of actions that increase sediments to streams and rivers containing these species.	Absent /No
Mountain sucker ( <i>Catostomus platyrhynchus</i> )	The mountain sucker is found primarily in small, low- mid elevation streams in northwestern Colorado with gravel, sand or mud bottoms. They inhabit undercut banks, eddies, small pools, and areas of moderate current. Young fish prefer backwaters and eddies. A population of mature adults is found in Steamboat Lake. Within the CRVFO, only known occurrence is in Piceance Creek.	Absent /No



Colorado River cutthroat trout (CRCT) ( <i>Oncorhynchus clarkii pleuriticus</i> )	CRCT are one of three subspecies of native trout found in Colorado. CRCT prefer clear, cool headwaters streams with coarse substrates, well-distributed pools, stable streambanks, and abundant stream cover. CRCT have been documented as occurring in Parachute Creek, Abrams Creek, Battlement Creek, Mitchell Creek, North Thompson Creek and Red Dirt Creek. It is likely that all of the perennial waters capable of harboring fish historically contained this native trout species. CRCT have hybridized with non-native salmonids in many areas, reducing the genetic integrity of this subspecies. Rainbow trout hybridize with cutthroat trout. Brook and brown trout tend to replace them in streams and rivers.	Present /Yes
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#### Environmental Consequences/Mitigation:

##### Proposed Action:

*Colorado River cutthroat trout.* A small population of these fish resides in East Fork Parachute Creek above, at, and below the project site. The proposed action would have some short-term effects to this species but long-term benefits. In the short-term, excavation associated with construction of the barrier may disturb soils and increase sediment entering the creek at the project site. Increased sediments reduce dissolved oxygen, raise stream temperature, and can cover spawning/rearing areas, thereby reducing the survival of fish embryos and juveniles (USDA Forest Service 2000). Excessive sedimentation can also fill in important pool habitats, reducing their depth and making them less usable by fish and other aquatic organisms. Knopp 1993, in a study of 60 northwestern California streams, found that intensive land use management was correlated to loss of pool volume. High sediment transport can fill pools and cause reduction or loss of essential salmonid juvenile rearing habitat (Frissell 1992). Pool habitats are important as over-summer and over-winter thermal refugia areas and, when coupled with stream flows, are often a limiting factor in many small mountain streams.

A number of sublethal effects on resident trout may also occur as a result of sedimentation, including avoidance behavior, reduced feeding and growth, and physiological stress (Waters 1995). Reduced macroinvertebrate productivity and diversity results when excessive sediment fills in the spaces between stream substrates needed by these aquatic invertebrates. Food webs can be altered as sediment-intolerant macroinvertebrates are replaced by sediment-tolerant species. Reduction in stream productivity can disrupt the food chain and result in reduced food sources for resident fish species. Suspended sediment causes turbidity within streams, which can impact species that need clear water in which to successfully capture prey, such as cutthroat trout. Results from a study on turbidity (Barrett et al. 1992) clearly indicated that wild rainbow trout exposed to increasing levels of suspended sediment are subject to reductions in their ability to detect prey. This in turn may lead to reduced prey capture rates and foraging success, lowering the growth and fitness of individual fish and populations. The longer the duration of high turbidity the more damage is likely to fish and other aquatic organisms (Newcombe and MacDonald 1991). The effects of sedimentation should be reduced as sediment retention devices will be used to eliminate off site soil movement. The stream would be diverted and all construction would be done in the non watered stream bed which will minimize sediment loading.

The potential loss of riparian vegetation can effect cutthroat trout by altering the nutrient dynamics of the aquatic ecosystem. In areas where riparian vegetation has been depleted or lost, a shift in energy inputs from riparian organic matter to primary production by algae and vascular plants has been predicted

Minshall et al. 1989) and observed (Spencer et al. 2003). The increased solar radiation that results from the loss of streamside (or poolside) vegetation causes temperatures, light levels, and autotrophic production (i.e., plants and algae) to increase. This change in a stream's food web can alter the composition of food and thus energy sources that are available to resident fishes and aquatic invertebrates. Terrestrial insect diversity and productivity also decreases with reductions in streamside vegetation, which also affects food availability for resident fish. Increased stream temperatures affect trout by reducing their growth efficiency and increasing their likelihood of succumbing to disease.

Prolonged and excessive utilization of streamside/riparian vegetation can also result in increased peak flows as vegetation is not sufficient in root mass, size, or abundance to sufficiently slow stream velocities. In addition, the loss of streamside vegetation reduces water percolation and infiltration, leading to unnaturally high and frequent runoff. This can result in accelerated bank erosion and sloughing, increased siltation, elevated stream temperatures, widened and braided stream channels, and loss of overhanging banks, all of which are important factors affecting trout productivity in a given. The loss of riparian vegetation will be minimal as only up to 5 individual willows and a small amount of riparian grasses and sedges would be removed from the project site. Willows will be replanted within disturbed areas at a 3:1 ratio of 5-gallon plants upon completion of the project.

In the long-term, the project would benefit Colorado River cutthroat trout as the barrier is the pre-cursor to chemical reclamation of the watershed above it. Brook trout would be removed and the stream stocked with pure Colorado River cutthroat trout.

#### Mitigation:

To reduce effects of sediment associated with construction BMP's (sediment controls in the form of straw waddles, silt fencing, recontouring, reseeding, willow planting, and weed treatment) would be implemented and maintained as needed. The stream shall be diverted around the project site to minimize the suspension and movement of fine sediments.

#### No Action:

Under the No Action alternative, the barrier would not be constructed and no impacts to Colorado River cutthroat trout would result.

Analysis on the Public Land Health Standard 4 for Special Status Aquatic Wildlife Species: (partial, see also Special Status Plants and Terrestrial Wildlife): This landscape was assessed back in 1999. At that time the project area was not meeting Land Health Standard 4 for fish as non native brook trout were present. The proposed action would facilitate the reclamation of the upper 3 miles of East Fork Parachute Creek and replace nonnative brook trout with pure Colorado River cutthroat trout and would improve land health standard 4 for special status aquatic wildlife species.

### **SPECIAL STATUS TERRESTRIAL WILDLIFE SPECIES (includes an analysis of Public Land Health Standard 4)**

#### Affected Environment:

**Table 6** summarizes the latest: 1) species list (USFWS 2010a) from the U. S. Fish and Wildlife Service for Federally listed, proposed, or candidate terrestrial wildlife species and 2) Colorado BLM State Director's Sensitive Species List (Updated November 2009) for terrestrial species; that may occur within the CRVFO and be impacted by the proposed action.

**Table 6 – Special Status Terrestrial Wildlife Species.**

Federally Listed, Proposed or Candidate Terrestrial Wildlife Species		
Species	Information/Range/Habitat Description	Occurrence/ Impacted
Black-footed Ferret ( <i>Mustela nigripes</i> )	Federally listed as endangered. Black-footed ferrets have ranged statewide but never have been abundant in Colorado. Their habitat included the eastern plains, the mountain parks and the western valleys – grasslands or shrub lands that supported some species of prairie dog, the ferret's primary prey. State and federal biologists have established two major black-footed ferret colonies: one at Coyote Basin (Colorado-Utah border west of Rangely) and another at the BLM's Wolf Creek Management Area southeast of Dinosaur National Monument.	Absent /No
Canada lynx ( <i>Lynx Canadensis</i> )	Federally listed as threatened. Canada lynx occupy high-latitude or high-elevation coniferous forests characterized by cold, snowy winters and an adequate prey base. In the western US, lynx are associated with mesic forests of lodgepole pine, subalpine fir, Engelmann spruce, and quaking aspen in the upper montane and subalpine zones, generally between 8,000 and 12,000 feet in elevation. Although snowshoe hares ( <i>Lepus americanus</i> ) are the preferred prey, lynx in also feed on mountain cottontails ( <i>Sylvilagus nuttallii</i> ), pine squirrels ( <i>Tamiasciurus hudsonicus</i> ), and blue grouse ( <i>Dendragapus obscurus</i> ). The Forest Service has mapped suitable denning, winter, and other habitat for lynx within the White River and Routt National Forests. The mapped suitable habitat comprises areas known as Lynx Analysis Units (LAUs) that are the approximate the size of a female's home range. Several LAUs include small parcels of BLM lands.	Absent /No
Mexican spotted owl ( <i>Strix occidentalis lucida</i> )	Federally listed as endangered. This owl nests, roosts, and hunts in mature coniferous forests in canyons and foothills. The key habitat components are old-growth forests with uneven-age stands, high canopy closure, high tree density, fallen logs and snags. The only extant populations in Colorado are in the Pikes Peak and Wet Mountain areas of south-central Colorado and the Mesa Verde area of southwestern Colorado.	Absent /No
Greater Sage- grouse ( <i>Centrocercus urophasianus</i> )	Candidate for Federal listing. Sage-grouse, as the name implies, are found only in areas where sagebrush is abundant, providing both food and cover. Sage-grouse prefer relatively open sagebrush flats or rolling sagebrush hills. In winter, sagebrush accounts for 100% of the diet for these birds. In addition, it provides important escape cover and protection from the elements. In late winter, males begin to concentrate on traditional strutting grounds or leks. Females arrive at the leks 1-2 weeks later. Leks can occur on a variety of land types or formations (windswept ridges, knolls, areas of flat sagebrush, flat bare openings in the sagebrush. Breeding occurs on the leks and in the adjacent sagebrush, typically from March through May. Females and their chicks remain largely dependent on forbs and insects for food well into early fall. Within the CRVFO sage-grouse are still present in the northeast part of the Field Office in the Northern Eagle/Southern Routt population, while small (<500 birds), probably has, or had, a relationship with the larger population in Moffat, Rio Blanco and western Routt counties, and probably with the Middle Park population to the east. (additional information provided below).	Absent /No

Yellow-billed cuckoo ( <i>Coccyzus americanus</i> )	Candidate for Federal listing. This secretive species occurs in mature riparian forests of cottonwoods and other large deciduous trees with a well-developed understory of tall riparian shrubs. Western cuckoos breed in large blocks of riparian habitats, particularly woodlands with cottonwoods ( <i>Populus fremontii</i> ) and willows ( <i>Salix</i> sp.). A few sightings of yellow-billed cuckoo have occurred in western Colorado along the Colorado River near Grand Junction.	Absent /No
Uncompahgre fritillary butterfly ( <i>Boloria acrocne</i> )	Federally listed as endangered. The butterfly has been verified at only two areas in the San Juan Mountains in Colorado. There is anecdotal evidence of other colonies in the San Juans and southern Sawatch ranges in Colorado. The butterfly exists above treeline on north and east facing slopes in patches of its larval host plant, snow willow. The greatest threat is butterfly collecting. Climatological patterns, disease, parasitism, predation, and trampling of larvae by humans and livestock pose additional threats.	Absent /No
<b>Colorado BLM Sensitive Terrestrial Wildlife Species</b>		
Species	Information/Range/Habitat Description	Occurrence/ Impacted
Townsend's big-eared bat ( <i>Corynorhinus townsendii</i> ) and Fringed myotis ( <i>Myotis thysanodes</i> )	Occur as scattered populations at moderate elevations on the western slope of Colorado. Habitat associations are not well defined. Both bats will forage over water and along the edge of vegetation for aerial insects. These bats commonly roost in caves, rock crevices, mines, buildings or tree cavities. Both species are widely distributed and usually occur in small groups. Townsend's big-eared bat is not very abundant anywhere in its range. This is attributed to patchy distribution and limited availability of suitable roosting habitat (Gruver, J.C. and D.A. Keinath 2006).	Absent /No
Midget faded rattlesnake ( <i>Crotalus viridis concolor</i> )	A small, pale-colored subspecies of the common and widespread western rattlesnake. The midget faded rattlesnake is endemic to northwestern Colorado, including western Garfield County. Habitats include sandy and rocky areas in pinyon-juniper and semi-desert shrub.	Absent /No
Northern goshawk ( <i>Accipiter gentilis</i> )	An uncommon resident in mountains. Occasional migrant that may winter at lower elevations. Predominantly uses mature stands of aspen, and ponderosa/ lodgepole pines. Goshawks prey on small-medium sized birds and mammals. It breeds in coniferous deciduous and mixed forests. The nest is typically located on a northerly aspect in a drainage or canyon and is often near a stream. Nest areas contain one or more stands of large, old trees with a dense canopy cover. A goshawk pair occupies its nest area from March until late September. The nest area is the center of all movements and behaviors associated with breeding from courtship through fledging.	Unlikely/No
Goldeneye, Barrow's ( <i>Bucephala islandica</i> )	This bird is an uncommon winter resident and spring/fall migrant. A few may breed in the northern mountains such as the Flat Tops Wilderness Area. Goldeneye's prefer alkaline-freshwater lakes in parkland areas and to a lesser extent subalpine/alpine lakes/beaver ponds for breeding.	Absent /No
Brewer's sparrow ( <i>Spizella berweri</i> )	Neotropical migrant that summers in western Colorado mountain parks and spring/fall migrant at lower elevations. A sagebrush shrubland obligate with an apparently secure conservation status in Colorado.	Absent /No
American Peregrine Falcon ( <i>Falco peregrines anatum</i> )	Rare spring and fall migrant in western valleys. Peregrine falcons inhabit open spaces associated with high cliffs and bluffs overlooking rivers. The falcon nests on high cliffs and forages over nearby woodlands.	Absent /No

Ibis, white-faced ( <i>Plegadis chihi</i> )	The species inhabits primarily freshwater wetlands, especially cattail ( <i>Typha</i> spp.) and bulrush ( <i>Scirpus</i> spp.) marshes. This bird is a very rare, non-breeding, summer migrant to western Colorado valleys and mountain lakes. This species feeds in flooded hay meadows, agricultural fields, and estuarine wetlands. This species breeds in isolated colonies in mainly shallow marshes with “islands” of emergent vegetation. This species is more commonly found on the eastern slope of Colorado (e.g. San Luis valley).	Absent /No
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#### Environmental Consequences/Mitigation:

##### Proposed Action:

Due to the unlikely presence of any individuals and the absence of any occupied or suitable habitat the proposed action would have no effect on any special status terrestrial wildlife species.

##### No Action:

Under the No Action alternative, the fish barrier would not be constructed and no impacts to any special status terrestrial wildlife would result.

Analysis on the Public Land Health Standard 4 for Special Status Terrestrial Wildlife Species: (partial, see also Special Status Plants and Aquatic Wildlife): A formal land health assessment was conducted on the landscape which includes the project area in 1999. No special status wildlife species were identified in the project area. Neither the proposed action nor the no action alternative would positively or negatively affect land health conditions or trends for special status terrestrial wildlife species (Land Health Standard 4).

## **WASTES, HAZARDOUS OR SOLID**

#### Affected Environment:

Fuels and lubricants would be used for the operation of all vehicles and equipment during project implementation. The majority of the proposed activities would occur either in East Fork Parachute Creek or within close proximity to the creek.

#### Environmental Consequences/Mitigation:

##### Proposed Action:

In order to implement the proposed activities it would be necessary for vehicles and equipment to be in close proximity to East Fork Parachute Creek when performing in channel operations and during the barrier construction. At times it would be necessary to cross East Fork Parachute Creek during project implementation. In the event of a spill, there is the potential for contaminants to be transported to surface water or soils, which could negatively impact water quality and aquatic organisms.

##### Mitigation:

Fuels and lubricants would be stored in appropriate containers and refueling would occur in designated areas at a minimum of 100 feet from the creek. To minimize the likelihood of spills and the delivery of hazardous materials to surface water, it is essential that vehicle and equipment remain out of the wetted channel while performing in channel activities. The diversion of creek water around the construction site should suffice and allow equipment to access the dry stream bed during construction.

When crossing the creek, equipment and vehicles should move quickly and without incident. Appropriate BMPs as outlined in the Proposed Action should be used to minimize the potential transport of fuels and

lubricants to East Fork Parachute Creek during runoff events. Following daily operations, vehicles and equipment shall be removed from the stream vicinity and stored overnight in a staging area a minimum of 100 feet from the stream bank. In addition, the contractor would be required to have a spill prevention plan on site at all times.

No Action:

There would be no impact from fuels or lubricants.

## **WATER QUALITY, SURFACE AND GROUND (includes an analysis on Standard 5)**

### Affected Environment:

The proposed action would occur north of I-70 on the top of the Roan Plateau in the East Fork Parachute Creek watershed. The water quality of the area has been characterized as generally good quality, and is currently being managed under guidance in the Roan Plateau RMPA/EIS (BLM 2006). The State of Colorado has developed a *Stream Classifications and Water Quality Standards* (CDPHE 2010a, Water Quality Control Commission, Regulation No. 37) list that identifies beneficial uses of water and numeric standards used to determine allowable concentrations of water quality parameters. The proposed fish barrier is located in segment 12a. This segment has been classified as aquatic life coldwater 1, recreation 2, and agriculture. Aquatic life cold 1 indicates that this water course is currently capable of sustaining a wide variety of cold water biota, including sensitive species, or could sustain such biota but for correctable water quality conditions. Recreation class 2 refers to waters that are not suitable or intended to become suitable for primary contact recreation.

East Fork Parachute Creek is not currently listed on the State of Colorado's *303(d) List of Water Quality Limited Segments Requiring TMDLS* or the *Monitoring and Evaluation List* (CDPHE 2010b, Water Quality Control Commission, Regulation No. 93). Table 7 displays average water quality data collected by the US Geological Survey from 1976-1983.

Table 7. Average Water Quality Data for East Fork Parachute Creek

<i>Parameter</i>	<i>East Fork Parachute Creek USGS Site #09092960 1976-1983</i>
Average Instantaneous discharge (cfs)	0.5
Temperature, water (°C)	9
Filtered pH (standard units)	8.2
Specific conductance (µS/cm at 25°C)	478
Hardness as CaCO <sub>3</sub> (mg/L)	234
Chloride (mg/L)	1.7
Selenium (µg/L)	0.9
Dissolved oxygen (mg/L)	8.4
Nitrate + Nitrite (mg/L N)	0.5

More recently, water quality was collected at each site where a PFC assessment was conducted during the 1999 Roan Cliffs Land Health assessment. Water quality parameters measured during this assessment were flow, temperature, specific conductance, salinity, and pH. Discharge on East Fork of Parachute

Creek was measured at 1.50 cfs and pH was 9.0 (BLM 1999). All water quality parameters were determined to be meeting State standards.

Environmental Consequences/Mitigation:

**Proposed Action:** The proposed activities would result in the removal of vegetation, bank stabilization and re-contouring, and soil displacement adjacent to East Fork Parachute Creek. Some soil compaction may occur during construction of the barrier, bank stabilization and staging of heavy equipment. Short term sediment transport and increased turbidity is expected to occur during construction but will be dispersed quickly. As part of this project, a nationwide ACOE 404 permit will be issued to account for any discharge of sediment into the stream.

To minimize sediment transport to East Fork Parachute Creek, it is essential that standard BMPs (as identified in the Proposed Action) and mitigation measures be installed and maintained on a frequent basis to ensure that water quality is not impaired by the proposed activities. Stream flow will be diverted around the construction activities during in-stream activities. Thus, downstream water quality changes are expected to be negligible due to the limited disturbance size and short time frame for the barrier construction.

**No Action:**

There would be no impact to water quality.

Analysis on the Public Land Health Standard for water quality: The water quality parameters measured in 1999 indicate that surface waters on the Roan Cliffs Landscape appear to be meeting the State standards for water quality. Thus, land health standards for water quality would be maintained by both the proposed action and no action alternative.

**WETLANDS & RIPARIAN ZONES (includes a analysis on Standard 2)**

Affected Environment:

The proposed fish barrier would be located in East Fork Parachute Creek. Riparian vegetation at the site consists of dense willow *Salix spp.*, sedges *Carex spp.*, and riparian grasses including tufted hair grass, red top, and meadow barley.

Environmental Consequences/Mitigation:

**Proposed Action:**

There would be a short term loss of riparian vegetation due to construction activities associated with the fish barrier. Loss of riparian vegetation would be less than 0.1 acres and less than 100 linear feet. It is estimated that five large willow plants would be removed as well as some herbaceous species. Removal of riparian vegetation would be offset by project stipulations that require the replacement of riparian vegetation at a 3:1 replacement ratio. Riparian values would be expected to be replaced within two years. The creation of a 0.55 acre pond above the barrier would increase water surface area and would likely create additional riparian vegetation from what currently exists. This would also offset negative impacts to the riparian area.

**No Action:**

No short-term loss of riparian vegetation would occur. Additional riparian vegetation would not be created from the 0.55 acre pond.



Analysis on the Public Land Health Standard for riparian systems: Land health conditions for riparian systems would be maintained by both the proposed action and no action alternative.

## **WILD AND SCENIC RIVERS**

### Affected Environment:

The proposed fish barrier is located within East Fork Parachute Creek, which was found to be eligible under a Roan Plateau Eligibility Report for the National Wild and Scenic Rivers System in 2002. All eligible segments will be managed to preserve the identified Outstanding Remarkable Values (ORV's) until such a time as a suitability study is completed. The ORV's identified for this segments was its core conservation population of Colorado River cutthroat trout, its rare hanging garden sullivantia (see Special Status Aquatic Wildlife Species, Special Status Plant Species), and its scenic ORV from East Fork Parachute Falls west into the box canyon. The 2007 ROD for the Roan Plateau RMP Amendment and EIS (page ROD-35) prescribed protective measures (SSR/CSU) to preserve the identified Outstanding Remarkable Values (ORV's) for fish and botany values until such a time as a suitability study is completed. The overall objective is to not allow surface disturbing activities that might impair those identified ORV's or the segments preliminary classification of scenic. (see Special Status Aquatic Wildlife Species, Vegetation).

### Environmental Consequences/Mitigation:

**Proposed Action:** The proposed fish barrier project occurs within the East Fork Parachute Creek. Brook trout are out-competing native cutthroat and are threatening the long-term persistence of cutthroat trout in this stream. It is estimated that without action to eliminate brook trout, Colorado River cutthroat trout will be completely gone from the creek in 1-3 years. In order to initiate restoration efforts, an in-channel fish barrier needs to be constructed to begin to separate the brook trout from the cutthroat trout. A barrier of sufficient size and design will eliminate upstream movement of brook trout so that efforts to reclaim the stream segment located above the barrier can be initiated. This barrier would be the first step towards the long-term goal of eliminating or at a minimum significantly reducing the amount of stream length occupied by non-native brook trout. Therefore, the Fish ORV will benefit from this action in the long term, although sedimentation from construction efforts may temporarily negatively impact the fish in the short-term. The project must take care to avoid any population of hanging garden sullivantia while construction. There is a possibility that this could negatively impact the botanical ORV. This project will have no effect on the scenic ORV.

The project would meet the exception criteria for the NSO because the project would have long-term benefits to the primary Outstanding Remarkable Value (ORV) of pure Colorado River cutthroat trout. The project would have short-term negative effects that are disclosed in this document but long-term free flowing criteria would be preserved. In addition, the project site is located in a segment that is classified as Scenic which does allow for some minor alterations while still complying with the act.

### **No Action:**

The no action alternative will have no impact or benefit the ORV's.

## **WILDERNESS**

### Affected Environment:

The proposed action is within an area that has been proposed by the public for wilderness designation. The Roan Plateau does have areas that contain characteristics associated with wilderness.

### Environmental Consequences/Mitigation:

**Proposed Action:**

The proposed project will have negligible impacts to wilderness characteristics. Development of barrier would slightly diminish the naturalness of the area in the long term, but not affect solitude or primitive and unconfined types of recreation in the long-term. There may be short-term effects to solitude and primitive and unconfined types of recreation during construction in the small project location. However, the Glenwood Springs Field Office Record of Decision for the Approval of Portions of the Roan Plateau Resource Management Plan and Environmental Impact Statement decided to not specifically manage the areas that contain characteristics associated with wilderness to protect and maintain those characteristics. Therefore, no mitigation is needed for the planned projects.

**No Action:**

There would be no impact to wilderness characteristics.

**Other Affected Resources**

In addition to the critical elements, the resources presented in Table 8 were considered for impact analysis relative to the proposed action and no action alternative. Resources that would be affected by the proposed action and no action alternative are discussed below.

**Table 8**

<b>Other Resources Considered in the Analysis.</b>			
<i>Resource</i>	<i>NA or Not Present</i>	<i>Present and Not Affected</i>	<i>Present and Affected</i>
Access and Transportation		X	
Cadastral Survey	X		
Fire/Fuels Management	X		
Forest Management	X		
Geology and Minerals	X		
Law Enforcement	X		
Paleontology	X		
Noise	X		
Range Management		X	
Realty Authorizations	X		
Recreation			X
Soils*			X
Vegetation*			X
Visual Resources		X	
Wildlife, Aquatic*			X
Wildlife, Terrestrial*			X

\*Public Land Health Standard

**RECREATION****Affected Environment:**

The proposed action is to occur on the Roan Plateau on the East Fork Parachute Creek. This action is to occur during hunting season, at the same time the general public will be camping, hunting, and recreating in this area.

**Environmental Consequences/Mitigation:**

**Proposed Action:**

The proposed action includes construction and engineering oversight personnel planning to camp up on the Roan Plateau at existing (already disturbed) dispersed campsites during hunting season. To minimize impacts to archery hunters, no work would be performed on weekends during the duration of construction. Workers should be made aware of hunting season dates and should take safety precautions while working and camping, including wearing orange vests and making noise when in timbered areas. Workers should camp close to the project location and relatively close together in dispersed campsites. Notices should be posted on the kiosks on the Roan Plateau to warn the general public of the increased number of people in that location and to educate the public of the project.

**No Action:**

The no action alternative would result in no impact to recreationalists.

**SOILS (includes a analysis on Standard 1)****Affected Environment:**

According to the *Soil Survey of Rifle Area, Colorado, Parts of Garfield and Mesa Counties* (NRCS1985), the proposed construction activities would be located on the soil map unit Rock outcrop-Torriorthents complex. This soil map unit consists of bedrock and soils of variable depth occurring on slopes of 50 to 80 percent (NRCS2011). The majority of the complex is rock outcrop which consists primarily of Green River shale. The remainder of the complex is Torriorthents which are shallow to moderately deep, clayey to loamy soils containing gravel, cobbles, and stones (NRCS1985). Surface runoff is rapid to very rapid and erosion hazard is moderate to severe (NRCS1985).

**Environmental Consequences/Mitigation:****Proposed Action:**

The proposed activities would result in loss of vegetation, soil compaction, and soil displacement in proximity to East Fork Parachute Creek. The removal of vegetation and soil displacement would occur along the upstream and downstream location of the fish barrier. Some soil compaction may occur during construction and bank stabilization through the use of heavy equipment along the stream bank. The proposed activities would result in some sediment transport to the stream during project implementation and prior to vegetation establishment during runoff events. To minimize the effects of sediment transport, it is essential that standard BMPs and mitigation measures be installed and maintained on a frequent basis to ensure that minimal soil loss is achieved. Once the barrier is constructed, monitoring will need to take place to ensure stability of the structure and that stream bank erosion is not occurring.

**No Action:**

There would be no impact to soils.

**Analysis on the Public Land Health Standard for upland soils:** Land health conditions for soils would be maintained by both the proposed action and no action alternative.

**VEGETATION (includes an analysis on Standard 3)****Affected Environment:**

Vegetation at and adjacent to the project site includes several willow species (*Salix drummondii* and *Salix monticola*), sedges (*Carex spp.*), and riparian grasses including redtop (*Agrostis gigantea*), tufted hairgrass (*Deschampsia cespitosa*), and meadow barley (*Hordeum brachyantherum*). Uplands next to the

creek include mixed mountain shrublands, and subalpine fir with upland grass species including needlegrasses (*Achnatherum nelsonii* and *Achnatherum lettermanii*), Indian ricegrass (*Achnatherum hymenoides*), and mountain brome (*Bromus marginatus*). Common forbs include Indian paintbrush (*Castilleja* spp.), cutleaf coneflower (*Rudbeckia laciniata*) and the noxious weeds houndstongue (*Hieracium cynoglossoides*), and Canada thistle (*Cirsium arvense*).

#### Environmental Consequences/Mitigation:

##### Proposed Action:

Project construction activities would temporarily disturb approximately 0.65 acres of upland vegetation and 0.1 acres of riparian vegetation to accommodate stream bank anchoring work, barrier construction, and the use of staging areas. The structure itself once completed would permanently occupy approximately 0.1 acres. However, the barrier would back up water and create a pond estimated at 0.55 acres.

Upon completion of construction, willows that were removed during the project would be replaced at a 3:1 ratio with native willows in 5-gallon containers. All other disturbed areas would be re-contoured and broadcast-seeded with native, certified weed free grass and forb seed. Monitoring and herbicide control of noxious weeds would be implemented for a minimum of 3 years following construction.

##### No Action:

Under the No Action alternative, the fish barrier would not be constructed and no vegetation would be removed or damaged. Noxious weeds would be controlled periodically as time and funding allow.

Analysis on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): In 1999, a formal Land Health Assessment was conducted on the landscape which includes the proposed action. At that time, the overall landscape was meeting Standard 3 for plant communities. Most upland plant communities were healthy and diverse. Riparian vegetation along East Fork Parachute Creek was increasing in cover and diversity. Noxious weeds were present throughout the watershed, particularly in riparian zones and adjacent uplands, but were not a dominant component of the ecosystem. The proposed action would have minimal effect on the condition of plant communities, although the disturbance associated with the project would increase the risk of noxious weed expansion. Planting of willows and seeding of native grasses and forbs would help reduce the risk of noxious weed expansion. In addition, active monitoring and control of noxious weeds would occur for a minimum of 3 years after project completion.

#### **WILDLIFE, AQUATIC (includes an analysis on Standard 3)**

##### Affected Environment:

East Fork Parachute Creek within the project area supports two fish species, nonnative brook trout (*Salvelinus fontinalis*) and native Colorado River cutthroat trout (*Oncorhynchus clarkia pleuriticus*) that latter of which is addressed in detail in the Special Status Species section above. In addition, the stream contains an abundant population of aquatic insects including a diverse array for stoneflies, caddis flies, and mayflies.

#### Environmental Consequences/Mitigation:

##### Proposed Action:

The proposed action would have some short-term effects to brook trout. In the short-term, excavation associated with construction of the barrier may disturb soils and increase sediment entering the creek at

the project site. Increased sediments reduce dissolved oxygen, raise stream temperature, and can cover spawning/rearing areas, thereby reducing the survival of fish embryos and juveniles (USDA Forest Service 2000). Excessive sedimentation can also fill in important pool habitats, reducing their depth and making them less usable by fish and other aquatic organisms. Knopp 1993, in a study of 60 northwestern California streams, found that intensive land use management was correlated to loss of pool volume. High sediment transport can fill pools and cause reduction or loss of essential salmonid juvenile rearing habitat (Frissell 1992). Pool habitats are important as over-summer and over-winter thermal refugia areas and, when coupled with stream flows, are often a limiting factor in many small mountain streams.

A number of sublethal effects on resident brook trout may also occur as a result of sedimentation, including avoidance behavior, reduced feeding and growth, and physiological stress (Waters 1995). Reduced macroinvertebrate productivity and diversity results when excessive sediment fills in the spaces between stream substrates needed by these aquatic invertebrates. Food webs can be altered as sediment-intolerant macroinvertebrates are replaced by sediment-tolerant species. Reduction in stream productivity can disrupt the food chain and result in reduced food sources for resident fish species. Suspended sediment causes turbidity within streams, which can impact species that need clear water in which to successfully capture prey, such as cutthroat trout. Results from a study on turbidity (Barrett et al. 1992) clearly indicated that wild rainbow trout exposed to increasing levels of suspended sediment are subject to reductions in their ability to detect prey. This in turn may lead to reduced prey capture rates and foraging success, lowering the growth and fitness of individual fish and populations. The longer the duration of high turbidity the more damage is likely to fish and other aquatic organisms (Newcombe and MacDonald 1991). The effects of sedimentation should be reduced as sediment retention devices will be used to eliminate off site soil movement. The stream would be diverted and all construction would be done in a the non watered stream bed which will minimize sediment loading.

The potential loss of riparian vegetation can effect brook trout by altering the nutrient dynamics of the aquatic ecosystem. In areas where riparian vegetation has been depleted or lost, a shift in energy inputs from riparian organic matter to primary production by algae and vascular plants has been predicted Minshall et al. 1989) and observed (Spencer et al. 2003). The increased solar radiation that results from the loss of streamside (or poolside) vegetation causes temperatures, light levels, and autotrophic production (i.e., plants and algae) to increase. This change in a stream's food web can alter the composition of food and thus energy sources that are available to resident fishes and aquatic invertebrates. Terrestrial insect diversity and productivity also decreases with reductions in streamside vegetation, which also affects food availability for resident fish. Increased stream temperatures affect trout by reducing their growth efficiency and increasing their likelihood of succumbing to disease.

Prolonged and excessive utilization of streamside/riparian vegetation can also result in increased peak flows as vegetation is not sufficient in root mass, size, or abundance to sufficiently slow stream velocities. In addition, the loss of streamside vegetation reduces water percolation and infiltration, leading to unnaturally high and frequent runoff. This can result in accelerated bank erosion and sloughing, increased siltation, elevated stream temperatures, widened and braided stream channels, and loss of overhanging banks, all of which are important factors affecting trout productivity in a given stream (Gardner 1950; Armour 1977; Behnke 1979ab; Claire and Storch 1977; Glinski 1977; Kaufman et al. 1983). The loss of riparian vegetation will be minimal as only up to 5 individual willows and a small amount of riparian grasses and sedges would be removed from the project site. Willows will be replanted within disturbed areas at a 3:1 ratio of 5-gallon plants upon completion of the project.

Brook trout are a non-native species and where they occur in association with native cutthroat trout they tend to outcompete native cutthroat. The barrier would be the first step toward eradication of this species from the headwaters of East Fork Parachute Creek to improve conditions for resident Colorado River cutthroat trout.

Aquatic insects could be negatively impacted at the project site and for a short distance downstream. Dewatering of the project area for construction would eliminate aquatic insects from approximately 40 feet of stream. However, upon completion of the project it is anticipated that aquatic insects from upstream and downstream reaches would quickly re-colonize the disturbed area. Sediment input from construction could result in minor impacts downstream as sediments could fill in stream substrates where aquatic insects live. These impacts would be minor as sediment control structures would be in place to minimize offsite soil movement.

**Mitigation:**

To reduce effects of sediment associated with construction BMP's (sediment controls in the form of straw wattles, silt fencing, recontouring, reseeding, willow planting, and weed treatment) would be implemented and maintained as needed. The stream shall be diverted around the project site to minimize the suspension and movement of fine sediments.

**No Action:**

Under the No Action alternative, no barrier would be constructed. No effects to brook trout or aquatic insects would result.

Analysis on the Public Land Health Standard for Aquatic Wildlife (partial, see also Vegetation and Wildlife, Terrestrial): A formal Land Health Assessment was completed for the area in 1999. At that time the project area was improving and meeting Standard 3 for aquatic wildlife. Conditions at the project site have improved with regard to stream condition and the area is currently meeting the standard. The proposed action would have no bearing on the streams continued ability to meet this standard.

**WILDLIFE, TERRESTRIAL (includes an analysis on Standard 3)**

Affected Environment:

The CRVFO supports a wide variety of terrestrial wildlife species that summer, winter, or migrate through the area. The habitat diversity provided by the broad expanses of sagebrush, mixed mountain shrub, aspen, pinyon-juniper woodlands, other types of coniferous forests, and riparian/wetland areas support many species. The current condition of wildlife habitats varies across the landscape. Some habitat is altered by power lines, pipelines, fences, public recreation use, residential and commercial development, vegetative treatments, livestock and wild ungulate grazing, oil and gas development, and roads/trails. These factors have contributed to some degradation/fragmentation of habitat as well as causing disturbance to some species.

*Reptiles.* Reptile species most likely to occur in the areas of proposed use include the western fence lizard (*Sceloporus undulatus*) and gopher snake (bullsnake) (*Pituophis catenifer*) in xeric shrublands or grassy clearings and the western terrestrial garter snake (*Thamnophis elegans*) along creeks/riparian areas. Other reptiles potentially present along creeks, although more commonly found at lower elevations than the site, are the milk snake (*Lampropeltis triangulum*) and smooth green snake (*Opheodrys vernalis*).

*Birds.* Passerine (perching) birds commonly found in the areas of proposed use include the: American robin (*Turdus migratorius*), pinyon jay (*Gymnorhinus cyanocephalus*) western scrub-jay (*Aphelocoma californica*), and black-billed magpie (*Pica pica*). Two gallinaceous species, the wild turkey (*Meleagris gallopavo*) and the Dusky grouse (*Dendragapus obscurus*), are found throughout the CRVFO.

Birds of prey (eagles, falcons, hawks, and owls) may migrate through the area or nest in cottonwoods, conifers, or very tall oaks, while the numerous songbirds and small mammal populations provide the primary prey base. Common raptor species in the CRVFO include the: red-tailed hawk (*Buteo jamaicensis*), golden eagle (*Aquila chrysaetos*) American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), Cooper's hawk (*Accipiter cooperii*), and sharp-shinned hawk (*A. striatus*).

Numerous streams, rivers, reservoirs, ponds, and associated riparian vegetation provide habitat for a wide variety of waterfowl and shorebirds. Common species include: great blue herons (*Ardea Herodias*), Canada geese (*Branta canadensis*), mallards (*Anas platyrhynchos*), pintails (*A. acuta*), gadwalls (*A. strepera*), and American wigeon (*A. americana*) are common.

**Mammals.** Numerous small mammals may be found in the areas of proposed use including: ground squirrels (*Spermophilus* spp.), chipmunks (*Neotamias* spp.), woodrats (*Neotoma* spp.), weasels, (*Mustela* spp.), rabbits (*Sylvilagus* spp.), skunks (*Mephitis mephitis*), and raccoons (*Procyon lotor*). Many of these small mammals provide the main prey for raptors and larger carnivores. These species are most likely to occur in and arouse the caves/geologic sites, along the drainages, near the margins of dense oakbrush, in pinyon-juniper woodland, or in the small area of aspen and spruce/fir. Larger carnivores expected to occur include the bobcat (*Lynx rufus*) and the coyote (*Canis latrans*). Black bears (*Ursus americanus*) make use of caves for denning, oaks and the associated brush for cover and food, while mountain lions (*Felis concolor*) are likely to occur during seasons when mule deer (*Odocoileus hemionus*) are present.

**Big Game.** The mule deer (*Odocoileus hemionus*) is a recreationally important species that are common throughout suitable habitats in the region. Another recreationally important big game ungulate (hoofed animal), the Rocky Mountain elk (*Cervus elaphus nelsonii*), is also present. Mule deer and elk usually occupy higher elevations, forested habitat, during the summer and then migrate to sagebrush-dominant ridges and south-facing slopes at lower elevation in the winter. BLM lands provide a large portion of the undeveloped winter range available to deer and elk.

#### Environmental Consequences/Mitigation:

##### Proposed Action:

The construction activities may disturb terrestrial wildlife species that inhabit or use the immediate area. The authorized use period is after the nesting/fledging period for birds with a potential to be present. The overall impact is likely short-term, temporary during daylight hours and would only affect individual animals immediately in the project area.

##### No Action:

Under the No Action alternative, no barrier would be constructed and no disturbance would occur.

Analysis on the Public Land Health Standard for Terrestrial Wildlife (partial, see also Vegetation and Wildlife, Aquatic): Neither the proposed action nor the no action alternative would positively or negatively affect land health conditions or trends for terrestrial wildlife species (Land Health Standard 3).

#### **SUMMARY OF CUMULATIVE IMPACTS**



The proposed action would result in limited, short-term, site specific impacts to select resources, with long-term benefits to Colorado River cutthroat trout. The area comprises a very small portion of the watershed. No cumulative impacts are anticipated from implementation of the proposed action.

#### **PERSONS / AGENCIES CONSULTED:**

Trout Unlimited – David Nickum

Colorado Division of Wildlife – Lori Marin, Matt Kondratieff, Tracy Kittell

U.S. Fish and Wildlife Service – Patty Gellatt

#### **INTERDISCIPLINARY REVIEW:**

<i><b>Name</b></i>	<i><b>Title</b></i>	<i><b>Responsibility</b></i>
Tom Fresques	Fish Biologist	NEPA Lead, Aquatic Wildlife, T/E/S Aquatic Wildlife
Michael Kinser	Rangeland Management Specialist	Wetlands and Riparian Zones, Range Management
Pauline Adams	Hydrologist	Air Quality, Water Quality, Soils, Hazardous Wastes
Carla DeYoung	Ecologist	ACEC, Vegetation, T/E/S Plants, Land Heath Stds
Greg Wolfgang	Outdoor Recreation Planner	VRM, Recreation, Travel Management
Kimberly Miller	Outdoor Recreation Planner	WSR, Wilderness, Recreation
John Brogan	Archaeologist	Cultural Resources and Native American Concerns
Brian Hopkins	Wildlife Biologist	Migratory Birds, Terrestrial Wildlife and T/E/S Terrestrial Wildlife
Monte Senor	Rangeland Management Specialist	Invasive, Non-native Species

#### **REFERENCES:**

Barrett, J.C., G.D. Grossman, and J. Rosenfeld. 1992. Turbidity- induced changes in reactive distance of rainbow trout. Transactions of the American Fisheries Society 121:437-443.

Bureau of Land Management (BLM). 1999. Roan Cliffs Land Health Assessment Summary Report. Unpublished report. Colorado River Valley Field Office, Silt, CO.

Bureau of Land Management (BLM). 2009. Information Bulletin No. CO-2010-007. State Director's Sensitive Species List, December 15, 2009.

Colorado Department of Health and the Environment (CDPHE). 2010a. Regulation No. 37, Classifications and Numeric Standards for Lower Colorado River Basin (5 CCR 1002-37). Water Quality Control Commission. Available online: <http://www.cdphe.state.co.us/regulations/wqccregs/>

Colorado Department of Health and the Environment (CDPHE). 2010b. Regulation No. 93, Colorado's 303 (d) List of Impaired Waters and Monitoring and Evaluation List, (5 CCR 1002-93). Water Quality Control Commission. Available online: <http://www.cdphe.state.co.us/regulations/wqccregs/>

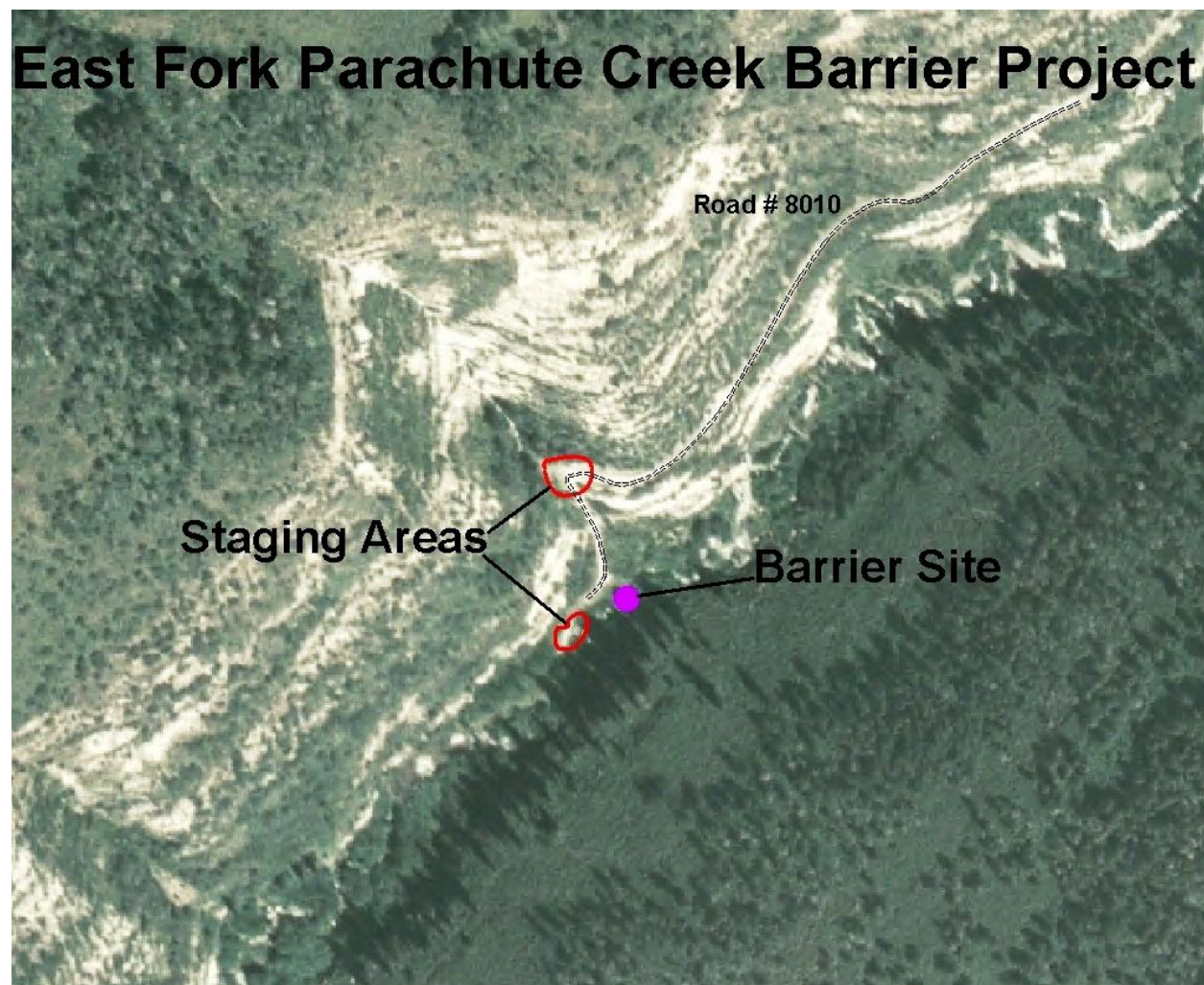
Frissell, C.A. 1992. Cumulative effects of land use on salmonid habitat on southwest Oregon streams. Ph.D. thesis, Oregon State University, Corvallis, OR.

- Gruver, J.C. and D.A. Keinath. 2006. [Online]. Townsend's Big-eared Bat (*Corynorhinus townsendii*): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Available: <http://www.fs.fed.us/r2/projects/scp/assessments/townsendbiggearedbat.pdf>. Accessed on 12-22-2009.
- Knopp, C. 1993. Testing Indices of Cold Water Fish Habitat. Final Report for Development of Techniques for Measuring Beneficial Use Protection and Inclusion into the North Coast Region's Basin Plan by Amendment of the.....Activities, September 18, 1990. North Coast Regional Water Quality Control Board in cooperation with California Department of Forestry. 57 pp.
- Minshall, G.W., J.T. Brock, and J.D. Varley. 1989. Wildfires and Yellowstone's Stream Ecosystems. *BioScience* 39:707-715.
- Natural Resource Conservation Service (NRCS). 1985. Soil Survey of Rifle Area, Colorado, Parts of Garfield and Mesa Counties. Available online: [http://soils.usda.gov/survey/online\\_surveys/colorado/](http://soils.usda.gov/survey/online_surveys/colorado/)
- Natural Resource Conservation Service (NRCS). 2011. Map Unit Descriptions for *Rifle Area, Colorado, Parts of Garfield and Mesa Counties*. Soil Data Viewer application. Available online: <http://soils.usda.gov/sdv/>.
- Newcombe, C.P. and D.D. MacDonald. 1991. Effects of Suspended Sediments on Aquatic Ecosystems. *North American Journal of Fisheries Management*. 11:72-82.
- Spencer, C.N., K.O. Gabel, and F.R. Hauer. 2003. Wildfire Effects on Stream Food Webs and Nutrient Dynamics in Glacier National Park, USA. *Forest Ecology and Management* 178:141-153.
- U.S. Department of Agriculture Forest Service (USDA Forest Service). 2002. Biological Assessment for the Implementation of the Preferred Alternatives for the Sierra Nevada Forest Plan Draft Environmental Impact Statement. Forest Service Pacific Southwest Region. Vallejo, California.
- U.S. Fish and Wildlife Service. 2010. [Online]. Website: <http://www.fws.gov/mountain-prairie/endspp/countylists/colorado.pdf>. Accessed on 11-23-2010.
- Waters, T.F. 1995. Sediment in Streams: Sources, Biological Effects and Control. American Fisheries Society Monograph 7. Bethesda, Maryland.

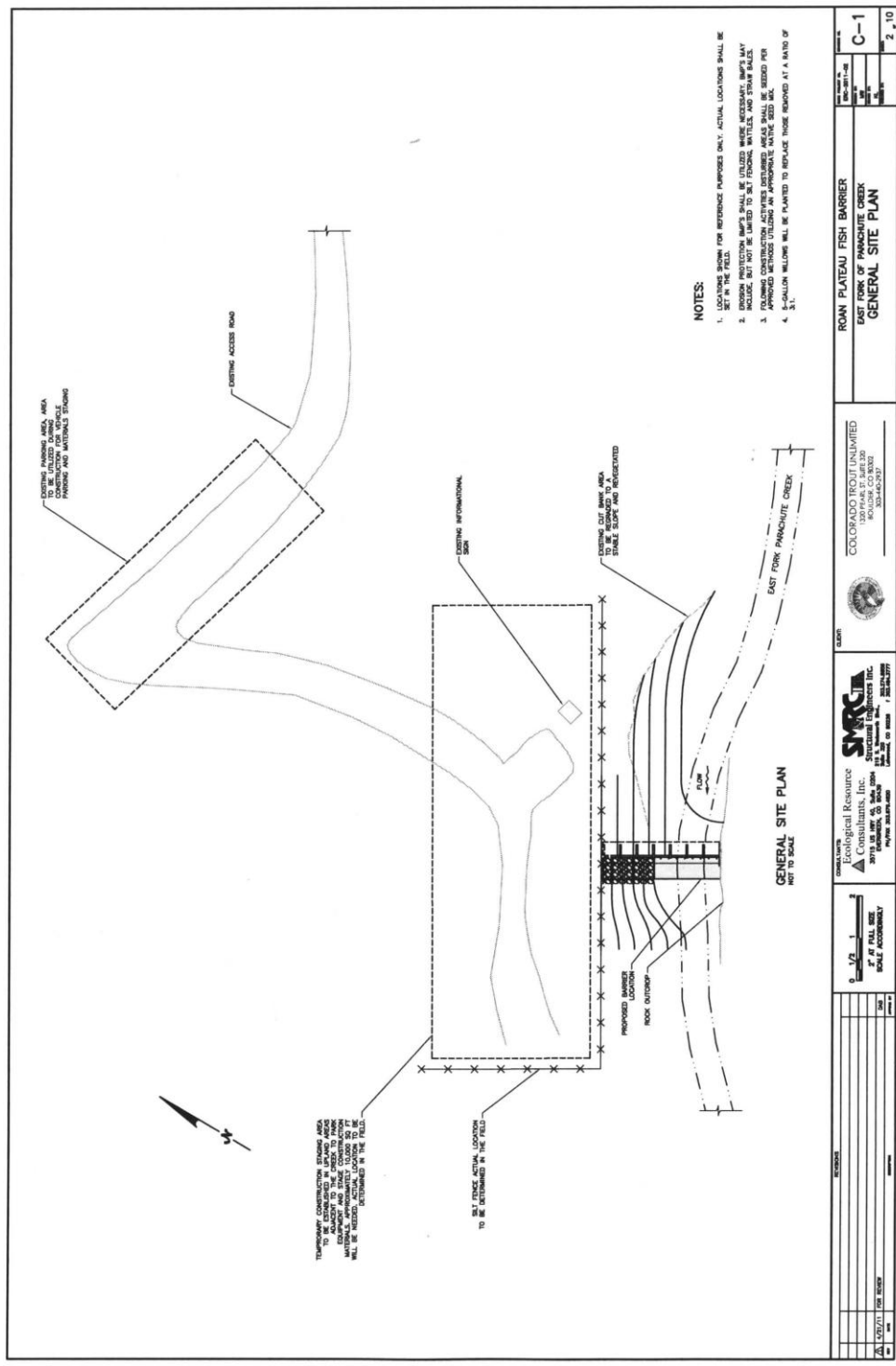
APPENDICES: None

ATTACHMENTS: Map of project site, Structural Drawings

## Attachment 1: Map of Project Site



Attachment 2: Structural Drawings



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
Colorado River Valley FIELD OFFICE  
**FINDING OF NO SIGNIFICANT IMPACT**

**Construction of Fish Passage Barrier on East Fork Parachute Creek**

**DOI-BLM-N040-2011-0059-EA**

The environmental assessment analyzing the environmental effects of the Proposed Action has been reviewed. The Proposed Action with the approved mitigation measures detailed below result in a Finding of No Significant Impact (FONSI) on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the Proposed Action.

**DECISION RECORD**

**DECISION:** It is my decision to authorize the construction of the fish passage barrier on East Fork Parachute Creek and implement the Proposed Action with the following disclosed mitigation.

**RATIONALE:** The project would benefit Colorado River cutthroat trout a BLM Sensitive Species, as the barrier would provide a means of separating nonnative brook trout from the pure cutthroat population.

**MITIGATION MEASURES:**

**Cultural Resources and Native American Religious Concerns**

Although there are no known “historic properties” in the project area, archaeological monitoring of construction activities is still recommended and will be conducted by the BLM-CRVFO archaeologist. No ground disturbing construction activities (topsoiling, grading, excavation, etc.) will begin prior to the archaeologist’s arrival. The CRVFO archaeologist will be on site as long as the BLM deems necessary.

**Education/Discovery Stipulation.** The National Historic Preservation Act (NHPA) requires that if newly discovered cultural resources are identified during project implementation, work in that area must stop and the agency Authorized Officer notified immediately (36 CFR 800.13). The Native American Graves Protection and Repatriation Act (NAGPRA), requires that if inadvertent discovery of Native American Remains or Objects occurs, activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice made to the BLM Authorized Officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)). Further actions also require compliance under the provisions of NHPA and the Archaeological Resource Protection Act.

**Invasive Non-Native Species**

To help minimize the potential for spread of invasive non-native species during or after project construction, the project inspector will ensure that equipment involved in surface disturbing actions is clean of noxious weed seeds or propagative parts prior to entry onsite. Post-construction weed monitoring and treatments would be conducted for three years following construction. Any Colorado-listed noxious weeds would be promptly treated and controlled according to the appropriate timing for each particular weed species. Staging of vehicles and equipment would not occur in weed-infested areas.

### **Special Status Aquatic Wildlife Species**

To reduce effects of sediment associated with construction BMP's (sediment controls in the form of straw wattles, silt fencing, recontouring, reseeding, willow planting, and weed treatment) would be implemented and maintained as needed. The stream shall be diverted around the project site to minimize the suspension and movement of fine sediments.

### **Wastes, Hazardous or Solid**

Fuels and lubricants would be stored in appropriate containers and refueling would occur in designated areas at a minimum of 100 feet from the creek. To minimize the likelihood of spills and the delivery of hazardous materials to surface water, it is essential that vehicle and equipment remain out of the wetted channel while performing in channel activities. The diversion of creek water around the construction site should suffice and allow equipment to access the dry stream bed during construction. Any spills or leaks from equipment in the dry stream channel will be cleaned up prior to diverting creek water back into the channel.

When crossing the creek, equipment and vehicles should move quickly and without incident. Appropriate BMPs as outlined in the Proposed Action should be used to minimize the potential transport of fuels and lubricants to East Fork Parachute Creek during runoff events. Following daily operations, vehicles and equipment shall be removed from the stream vicinity and stored overnight in a staging area a minimum of 100 feet from the stream bank. In addition, the contractor would be required to have a spill prevention plan on site at all times.

### **Water Quality, Surface and Ground, and Soils**

To minimize sediment transport to East Fork Parachute Creek, it is essential that standard BMPs (as identified in the Proposed Action) and mitigation measures be installed and maintained on a frequent basis to ensure that water quality is not impaired by the proposed activities. Stream flow will be diverted around the construction activities during in-stream activities.

### **Wetlands & Riparian Zones**

It is estimated that five large willow plants would be removed as well as some herbaceous species. Removal of riparian vegetation would be offset by project stipulations that would require replacement of riparian vegetation at a 3:1 replacement ratio.

### **Recreation**

To minimize impacts to archery hunters, no work would be performed on weekends during the duration of construction. Workers should be made aware of hunting season dates and should take safety precautions while working and camping, including wearing orange vests and making noise when in timbered areas. Workers should camp close to the project location and relatively close together in dispersed campsites. Notices should be posted on the kiosks on the Roan Plateau to warn the general public of the increased number of people in that location and to educate the public of the project.

### **Soils**

To minimize the effects of sediment transport, it is essential that standard BMPs and mitigation measures be installed and maintained on a frequent basis to ensure that minimal soil loss is achieved. Once the barrier is constructed, monitoring will need to take place to ensure stability of the structure and that stream bank erosion is not occurring.

### **Vegetation**

Upon completion of construction, willows that were removed during the project would be replaced at a 3:1 ratio with native willows in 5-gallon containers. All other disturbed areas would be re-contoured and

broadcast-seeded with native, certified weed free grass and forb seed. Monitoring and herbicide control of noxious weeds would be implemented for a minimum of 3 years following construction.

**Visual Resources**

As part of the proposed action, the barrier will incorporate the use of both stamped concrete and logs on the face of the structure to help the structure blend with the natural environment.

PREPARER: Thomas D. Fresques

SIGNATURE OF AUTHORIZED OFFICIAL:

A handwritten signature in black ink, appearing to read "Karl R. Mendonca", with a long horizontal flourish extending to the right.

Karl R. Mendonca  
Associate Field Manager

DATE SIGNED: June 14, 2011